Missouri Botanical Garden

bulletin

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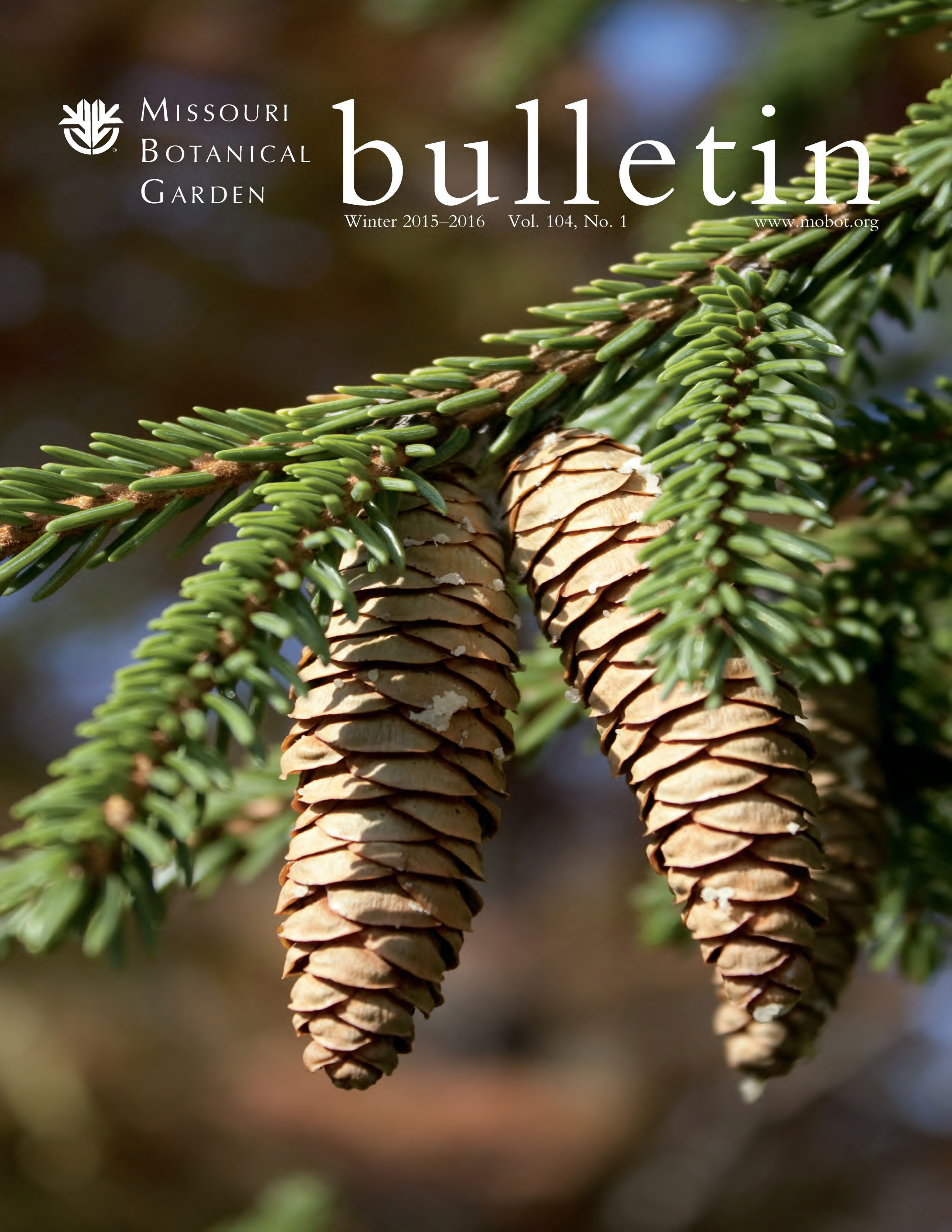




photo by Koraley Northen

President's Comment

While winter may seem like the time of year when nature takes a break, there are many exciting things happening all around us. Whether you join us for our third annual Garden Glow at the Missouri Botanical Garden, warm up in the Tropical Conservatory with our jewel-toned butterflies during Winter Jewels at the Sophia M. Sachs Butterfly House, or take a full moon night hike at Shaw Nature Reserve, don't let the cold keep you from enjoying the wonderful world of plants.

And speaking of the wonders of the plant world, let's not forget the key role plants play in maintaining a healthy environment and supporting human well-being. In addition to being a leader in addressing some of the world's most pressing issues (see page 4), the Garden has also been a trendsetter in the community showcasing examples of sustainable living practices for individuals and businesses alike. We're proud to continue driving the conversation that encourages people to think about their neighborhoods as biodiverse landscapes that provide crucial services such as food, shelter, and water (see page 7).

As another year ends, I'd like to thank you for all your support in making the Garden a world-class research institution and destination. I invite you to learn something new about *your* Garden, and what makes it so special. It may be going behind the scenes and exploring our research center (see page 20), or it may be learning a new gardening skill as you prepare for spring (see pages 16 and 17). No matter how or when, we know you'll enjoy your next visit during this lovely time of year—cold temperatures and all.



Dr. Peter Wyse Jackson,
President

Did you know?

Your membership provides critical support for our international and local plant science and conservation work, and Garden memberships contribute 20% of our annual operating funds.

Plus, as a Garden member:

- You receive free admission for two adults and all children (12 and younger) at Shaw Nature Reserve and the Butterfly House.
- Special Member Days offer you exclusive activities and discounts in the shops.
- The Children's Garden is free to you all day Tuesday (April–October).
- You are eligible for free or reduced-price admission to over 300 botanical gardens and arboreta across the U.S. and Canada.

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For our current hours and admission prices at our three locations, visit **www.mobot.org**, **www.butterflyhouse.org**, and **www.shawnature.org**.

Contact

Missouri Botanical Garden
4344 Shaw Blvd., St. Louis, MO 63110
(314) 577-5100 • www.mobot.org

On the Cover

Picea orientalis 'Aureospicata'. Find specimens of oriental spruce in the Chinese Garden. Photo by Darcy Heine.

Credits

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To discover and share knowledge about plants and their environment in order to preserve and enrich life.

– mission of the Missouri Botanical Garden

photo by Maddy Gordon

News

In Memoriam: Evelyn Newman



The Missouri Botanical Garden honors the legacy of an exemplary supporter and Emeritus Trustee Evelyn Newman. Evelyn passed away in September and left an incredible legacy for St. Louis. The Garden benefitted in many ways from her lifetime of charitable works and entrepreneurism.

Evelyn was a supporter of the Garden for nearly 40 years. In 1998 she single-handedly established the Sophia M. Sachs Butterfly House in Faust Park in Chesterfield, Missouri. The Butterfly House later became a division of the Garden in 2001.

Evelyn also became a Garden Trustee, providing fundraising and retail counsel for many years. She created the fantastic "Wing Ding" fundraising event at the Butterfly House. With her guidance, the Garden opened the Little Shop Around the Corner in 2004, a resale shop that supports the institution's mission by reusing quality merchandise and raising funds for programs and operations.

Evelyn also created ScholarShop, a retail store where all sale proceeds fund scholarships and loans for students, and the Greater St. Louis Book Fair. She was also one of the founders of Forest Park Forever and The First Street Forum—now the Contemporary Art Museum St. Louis.

The Garden is forever grateful for Evelyn's involvement and support.

In Memoriam: Mary Hall

The Garden also notes the passing of Mary Taussig Tompkins Hall. She passed away in August after a lifetime of commitment to social justice, public health, the environment, global hunger, and child welfare. She worked tirelessly to have an impact on a variety of issues and with a variety of partners. For more than a decade, Mary worked with the United Nations on issues related to global hunger and the environment. She helped plan and spoke at a regional "World Environment Day" at the Garden in 1987. Mary and her second husband, Thomas, also supported the Garden for more than three decades.

Tom served on the Board of Trustees prior to his passing in 1990. Mary permanently enriched the Garden by donating *Three Graces* by Gerhardt Marx as a memorial for Tom. Prior to that, the sculpture had been on loan from the couple's private collection. This beautiful piece is now on display in the English Woodland Garden.

New Volunteer Program Manager Joins the Garden



The Garden welcomed Scott Bahan as its new Volunteer Program Manager. Jackie Juras, who for 14 years served in that position, retired September 11 (see page 22).

Bahan joined the Garden in September after five years as Manager of Volunteers at 88.1 FM KDHX, the independent, noncommercial radio station in St. Louis. Previous experience includes managing volunteer programs for the Red Rock Canyon Interpretive Association in Nevada, where he was also an interpretive assistant helping with education programs, visitor services, and field trips. "To have our visitor services and education programs be powered by volunteers is really important to me," Bahan says, "as well as giving them an opportunity to be able to take ownership."

Bahan received his Bachelors of Science in Agricultural Studies from Truman State University and has his Masters of Science in Nonprofit Management from Fontbonne University. From the moment he joined, he has been busy immersing himself in the culture of the Garden and learning more about why people volunteer. "The dedication and time, which is their most valuable resource, that our volunteers give to the Garden is impressive," he says. "I'm looking forward to maintaining and building on the legacy that Jackie built over the years." To learn more about volunteer opportunities, visit **www.mobot.org/volunteer.**

United Nations Adopts New Agenda on Sustainable Development

On September 25, the 193 country leaders attending the United Nations (UN) General Assembly adopted its new global Agenda for Sustainable Development, including



Garden President Dr. Peter Wyse Jackson and Deborah Patterson, President of the Monsanto Fund welcomed families to the free Community Day at the Butterfly House sponsored by the Monsanto Company. (photo by John Dedeke)

World Flora Online Gets Additional Support

The Garden has received $2 million from Monsanto Company to support its work on the development of a World Flora Online. The gift extends the company's support for the project after a three-year, $3-million gift in 2012. "Creating the World Flora Online was adopted as a target for every country in the world," says Garden President Dr. Peter Wyse Jackson. "So for us, our partners, and Monsanto to be able to respond to this priority and take a leadership role is very important because it isn't often that everyone in the world agrees on a top priority."

To commemorate the generous gift, the company also sponsored a free community day at the Butterfly House in September, where visitors enjoyed free admission and special activities. "As part of our outreach effort into the St. Louis community, we wanted to connect people with our commitment to habitat restoration for monarch butterflies," says Deborah Patterson, President of the Monsanto Fund.

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17 Goals and 169 targets for these goals. This 15-year plan replaces the previously adopted Millennium Development Goals and extends to 2030.

Many Garden programs in the areas of botany, conservation, horticulture, education, and sustainability are representative of these newly adopted global goals and targets. In St. Louis and around the world, the Garden strives to improve the livelihood and well-being of humans and our environment. "The Missouri Botanical Garden is committed to playing a leading role worldwide in helping to meet these exciting but challenging new goals over the coming years," says Garden President Dr. Peter Wyse Jackson. "We recognize that a healthy environment, rich in plants and biodiversity, is essential if the great challenges faced by the world—poverty, securing human well-being, peace, stability, and climate change—are to be addressed."

In 2014 Dr. Wyse Jackson addressed the UN's Convention on Biological Diversity regarding the worldwide implementation of the Global Strategy for Plant Conservation.

IMLS Grant to Harness Power of Herbarium Collections

In September, the Institute of Museum and Library Services (IMLS) awarded a National Leadership Grant of $351,579 over three years to Dr. Adam Smith, Global Change Ecologist at the Garden's Center for Conservation and Sustainable Development (CCSD). The highly competitive grants support projects that "address critical needs of the museum field and that have the potential to advance practice in the profession so that museums can improve services for the American public."

Dr. Smith's project, in collaboration with the University of California's Museum of Vertebrate Zoology, will develop methods and software to mobilize the vast collections of data that natural history museums and herbaria have, including hundreds of millions of zoological, botanical, and paleontological specimens.

News cont.

These collections serve as the foundation for understanding the distribution of life on Earth and are the basis for addressing climate change, loss of biodiversity, and other global threats. The methods developed with this project will help botanical gardens, natural history museums, and zoos identify gaps in their collections and help predict and mitigate these threats. "The places with the most species are the ones we know the least about," Dr. Smith says. "The 6.6 million specimens in the Garden's Herbarium go a long way—but not the whole way—toward addressing this gap. This grant will enhance the value of the collection and its ability to guide conservation." To learn more about the Herbarium, see page 20.

Climate Change Study in Tropics and the Garden

The International Center for Advanced Renewable Energy and Sustainability (I-CARES) at Washington University in St. Louis awarded $32,000 to an international, multi-institutional project studying climate change and tropical forests in Bolivia. Among the project's collaborators are the Garden's Dr. Peter Jørgensen, Dr. Iván Jiménez, and Dr. Sebastián Tello.

The study seeks to address one of the most pressing questions regarding ecology, conservation, and sustainability in the world's most biodiverse ecosystem: What influence does climate change have on plant populations, communities, and ecosystems in tropical mountains? While there has been interest in studying climate change in tropical forests, efforts have been hampered by the limited number of long-term studies across elevation gradients. The Garden's Madidi Project, however, has mapped and identified over the past 13 years more than 200,000 individual trees and 2,600 plant species within a network of plots in one of the most important conservation areas in the tropical Andes. "Few if any other studies in the tropics can match the replication, spatial scales, and botanical diversity encompassed by the Madidi Project," says Dr. Jonathan Myers, Assistant Professor in Washington University's Department of Biology and lead project investigator.

The new project will produce one of the first dynamic assessments of forest ecosystems and provide information for policy makers in Bolivia to mitigate the effects of climate change in the Madidi region.

Community Documents Biodiversity at the Reserve

Participants in the Academy of Science–St. Louis BioBlitz at Shaw Nature Reserve documented a record-breaking 490 observations and 223 species of plants and animals. The intensive, two-day event in September brought together leading scientists, environmental professionals, naturalists, and citizen scientists of all ages to find and identify as many species as possible at the Reserve. "Through careful management and innovative programs in ecological restoration, the Reserve has become a hotspot for plant and animal diversity in our region," says Garden President Dr. Peter Wyse Jackson. In addition to the general public, area schools from the Ferguson-Florissant District, St. Louis Public Schools, Eureka, Washington, and Meramec Valley also participated in the event.

The Garden's scientists are working to compile a long-term complete inventory of the plant and animal species present at the Reserve by utilizing the iNaturalist data bank for the first time. "This was the 10th Academy of Science–St. Louis BioBlitz, and the first time we have uploaded the data into the publicly accessible data bank, iNaturalist," says Peggy James Nacke, the Academy's BioBlitz Director. "It was fun to see the observation and species count in real-time on our mobile devices. This is an excellent example of technology drawing all ages outside for engagement with nature."



David Bruns of the Missouri Department of Conservation (left) assisted the team tasked with finding and documenting lichens around Shaw Nature Reserve during the BioBlitz. (photo by Michelle Scherer)



Garden horticulturist Richard Harrison carefully removes the packaging from one of the bonsai that arrived this fall. (photo by Sheridan Hentrich)

Bonsai Gift from Brooklyn Arrives at the Garden

Brooklyn Botanic Garden (BBG) presented a gift of 15 bonsai trees to the Garden this fall in honor of the close collaboration between the two gardens. BBG's President Scot Medbury and Vice President of Horticulture Melanie Sifton personally delivered them. "It's an incredible collection," Medbury says. "They're all unique in their own regard, and they all have extraordinary potential."

In total their age is approximately 600 years, with some specimens older than 60 years old. "We are honored to receive this magnificent gift, especially from an institution with such rich history in bonsai," says Garden President Dr. Peter Wyse Jackson. While the beginnings of the art go back almost 2,000 years, it was BBG's first bonsai curator, Frank Okamura, who first experimented with tropical plants suitable for indoor cultivation and popularized indoor bonsai. BBG's collection started with 32 trees in 1925 and now has almost 450.

The bonsai are being cared for in the greenhouses during the winter, but they will be displayed in the Japanese Garden and Boxwood Garden starting in the spring.

EarthWays Center Celebrates Milestone

This November, the EarthWays Center celebrated 15 years at the Garden. Promoting environmental education since the early 1990s, it was incorporated into the Garden in 2000 as an important tool to connect everyday lifestyle choices with the impact on plants, their ecosystems, and the environment.

EarthWays Center programs help schools, homeowners, businesses, and municipalities adopt sustainble, environmentally friendly practices that are also practical and economically viable. "The Center's impact is also evident in the sustainable operations at the Garden—parking lots with porous pavements, rain gardens, and electric vehicle charging stations; food waste composting in the cafés; and LEED-certified buildings," says Vice President of Sustainability Deborah Frank. "We strive to educate and demonstrate sustainability-in-action."

In 2014 the EarthWays Center was one of the many resources used to launch *BiodiverseCity St. Louis*, a Garden-led initiative that engages the community with the importance of fostering and protecting biodiversity. To learn more, visit **www.mobot.org/ewc.**

A Decade Of Sharing Native Plant Knowledge

The Native Plant School (NPS) celebrated 10 years this October with a free event at Shaw Nature Reserve that included keynote speaker Alan Branhagen, Director of Horticulture at Powell Gardens; live music; refreshments; and exhibits.

When Scott Woodbury joined the Reserve as the Whitmire Family Curator of Native Plant Horticulture in 1991, he organized a two-day conference every two years that aimed to promote landscaping with native plants. After 13 years, it became apparent to him that the local community wanted access to this knowledge more than just every two years. So in 2005, the NPS began offering 10 to 12 three-hour classes throughout the year. They fill up quickly, and there's always a waiting list. "This information is not being taught in school, and there's nowhere else in the region to get this in-depth, hands-on information," Woodbury says. "It all goes back to the gift that the Whitmires gave to Shaw Nature Reserve because people come see the garden and are inspired to use native plants in different ways in their gardens." To learn more about the NPS, visit **www.shawnature.org/nps.**

Additional Support For Deer Creek Project

In July, the Metropolitan St. Louis Sewer District announced its continued support of the Deer Creek Watershed Alliance, a Garden project that advocates plant-based

News cont.

solutions for cleaner water in Deer Creek. The $207,500 grant supports the Alliance's rainscaping program of landscaping strategies to capture and slow rain where it falls.

This contribution provides matching funds for a 319-grant from the Missouri Department of Natural Resources to improve water quality, according to Vice President of Sustainability Deborah Frank. "Our goal is to fund 80 more landowner projects," she says.

In addition, the Holton Family contributed $15,000 for free experiential community workshops that result in more native plants, healthier soils, increased biodiversity, and clean water.

On September 17, the Garden's EarthWays Center, Shaw Nature Reserve, and Alliance co-hosted one of these free workshops at Mary Institute and Country Day School (MICDS). Ninety homeowners and professionals toured MICDS's large bioretention feature and learned about nature-rich stormwater management strategies from a panel of local and national experts. To learn more, please visit **www.deercreekalliance.org**.

Studying Genetics to Help Threatened Species

Studying the genetic diversity of individual plant species can help conservation managers understand how to best manage them. That is where experts like the Garden's Conservation Geneticist Dr. Christy Edwards can help. Earlier this fall, Dr. Edwards received three grants totaling more than $60,000 from the U.S. Fish and Wildlife Service to study three federally threatened plant species.

The projects will focus on Kentucky gladecress (*Leavenworthia exigua* var. *laciniata*), geocarpon (*Geocarpon minimum*), and Missouri bladder pod (*Physaria filiformis*). Studying the genetic composition of some of these species' populations provides insight into the seed dispersal, mating system, and the structuring of genetic variation in a species. "This information tells us how many populations need to be protected," Dr. Edwards says. "If genetic variation is structured among populations, then each population is genetically unique and in need of protection. But if genetic variation is maintained within populations, then each population contains a large amount of the genetic variation, and we could protect a few large populations."

For the geocarpon and Missouri bladder pod projects, she will collaborate with the Garden's Dr. Matthew Albrecht and Dr. George Yatskievich to collect specimens in the wild and, in the case of the Missouri bladder pod, collect seeds for conservation seed banking. "These projects are also helping us build great partnerships with the state and federal officials that make conservation decisions," Dr. Edwards says. The U.S. Fish and Wildlife Service can use the results as it reviews and implements the recovery plans for these three threatened species.

Gardening Q&A



photo by Sonya Lalla

How do I protect my perennials for winter?

Garden perennials that are winter-hardy can still be damaged when the soil freezes and thaws several times during the winter. This freezing and thawing of the soil may loosen or heave the plants, causing roots to break and dry.

A 2"- to 4"-layer of organic mulch, such as leaves, compost, wood chips, or shredded bark, will provide winter protection to perennials by preventing these rapid temperature changes of the soil. This mulch will also reduce deep penetration of frost and excessive loss of moisture. The mulch should be applied after the soil begins to freeze.

A final word of caution: For added protection, be sure to buy perennials that are winter-hardy in this area. A reliable nursery or garden supply center will be able to guide you in your selection.

Also, avoid planting perennials in poorly drained locations where they might be subject to winter root rot.

Get more plant care information this winter with our gardening advice, tips, and resources available at **www.mobot.org/gardeninghelp**.



photo by Maddy Gordon

all about

CONIFERS

A look at these iconic plants and why there's more to them than holiday lights.

Long before Christmas trees became popular in the United States in the early 1890s, evergreen plants had a special meaning in the winter for many around the world. And while most conifers remain green through the winter, there is more to these beautiful trees than holiday decorations. This plant group is very diverse, with a wide range of size, shape, color, and type.

Conifers are trees and shrubs that produce cones instead of flowers and fruits. About 630 coniferous species are found throughout the world, and they include pines, firs, yews, junipers, and spruces. Their main characteristics are their cones; needle- or scale-like leaves; and a shallow, wide-spreading root system that anchors the trunk and allows it to absorb water and nutrients from the soil. Of the gymonosperms, which also include groups such as cycads, they are the most abundant, widely distributed, and ecologically and economically important.



For most conifers, the pollen and seed are borne in separate cones on the same tree. Wind carries the pollen from a male cone to a female cone, where the seed will develop. (photo by Tom Incrocci)

Cones, Wind, and Fire

Cones, as the name suggests, are the main characteristic of conifers. They contain the plant's reproductive structures. The pollen and seeds in most conifers are borne in separate cones on the same tree. The wind carries the pollen grains produced in the pollen cones to the seed cones, where they are protected for about two years as they develop.

How the cones release mature seeds depends on the species. For some in temperate regions, the cones' scales separate and release the winged seeds. The wind takes care of the rest. Others, however, have cones sealed with resin. The only way for seeds in these cones to be released is for the resin to be melted by fire. That is why fire is an important and common environmental disturbance in some conifer habitats. It is needed not only for these seeds to germinate but also to clear understory vegetation and allow seeds to fall on bare, fertile soil.

many conifer species produce oils and other volatile compounds that promote wildfires

A Prickly Relationship



Pine devil moth caterpillar.

photo courtesy of the Connecticut Agricultural Experiment Station

Insects and conifers have an often-misunderstood relationship. Conifers are one of the oldest groups of plant life, and insects are one of the oldest groups of animal life. Given their ancient origins, conifers and insects have had millions of years to evolve complex relationships. "There are many well-known examples of insects that are pests of coniferous plants," says Chris Hartley, Coordinator of Education at the Butterfly House. "But there are numerous examples of positive relationships between insects and conifers as well."

Conifer leaves serve as food for some native caterpillars. Pine trees may feed caterpillars of the pine sphinx moth (*Lapara coniferarum*). Several inchworms, which are caterpillars of geometer moths, feed on conifers as well. One of North America's most spectacular caterpillars, the pine devil moth (*Citheronia sepulcralis*), feeds only on pine leaves.

In many high mountain ranges where temperatures are cool, conifers are often the dominant plants. This is the case in the oyamel fir forests of Central Mexico, which shelter millions of migrating monarch butterflies each winter. Monarchs west of the Rockies find similar winter shelter in the Monterey pines and Monterey cypresses of Southern California. The monarch's migration south through Canada and the United States is well known, but if not for the particular conditions provided by the oyamel firs, the butterflies could not make it through the winter safely. "These fir trees make North American monarch survival possible, as there is no other site with the conditions they need," Hartley says.

Everywhere But Antarctica

Some of the earliest conifers date to the Late Carboniferous period, some 300 million years ago. They were a dominant plant group in most parts of the world before flowering plants diversified and became more successful.

As they evolved and adapted to survive without much water, some conifers developed needle-like leaves. This shape reduces the evaporation of water, allowing the tree to retain what little water is available and survive where other trees can't. This is why some conifers can be found in a wide variety of environments—from cold boreal forests to dry deserts. In fact, conifers grow on all continents except Antarctica, and they can be found on most large continental islands and many smaller islands.

One such island is New Caledonia, located in the southwest Pacific Ocean. It was one of the key areas for Garden research identified in the 1970s by President Emeritus Dr. Peter Raven. At just 7,172 square miles, this small, mountainous archipelago contains a high concentration of plant diversity as well as a wide variety of soils and climate types. Conifers are one of the plant groups with a strong presence in New Caledonia, and they have developed and diversified on the island over millions of years. Today all 43 conifer species found in New Caledonia are endemic, meaning found nowhere else in the world. They include *Parasitaxus usta*, the only parasitic conifer on Earth.

Dr. Pete Lowry, Senior Curator and Director of the Garden's Africa and Madagascar Program, has studied New Caledonia's flora since he was a post-graduate student at the Garden in the early 1980s. Over the past three decades, he has continued to discover and document the island's plants, including conifers. "New Caledonia is home to 8% of the world's conifers," he says, "and the threats that affect them are particularly worrisome for preserving conifer diversity." In 2010 Dr. Lowry collaborated with researchers from the Institut de Recherche pour le Développement to re-evaluate the threat status of the island's conifers. Their findings were incorporated into the International Union for Conservation of Nature (IUCN) Red List of Threatened Species™.



Araucaria muelleri, endemic to New Caledonia, is restricted to a few dozen localities in the southern part of the island, often along mountain ridges. It is threatened by mining activities that impact the nickel-rich soils on which it grows, and it is listed as "endangered" on the IUCN Red List. *Araucaria muelleri* can be recognized by its distinctive candelabra-like appearance, and it has the largest leaves of any *Araucaria* species of in New Caledonia. (photo by Dr. Pete Lowry)

many conifers in boreal forests are tall and narrow to limit the surface area on which snow can accumulate



The Yunnan pine (*Pinus yunnanensis*) forest provides many services to the local Tibetan community, including building materials for their homes. (photo by Bob Moseley, The Nature Conservancy)

Counting on Conifers

Conifers play an important role in the ecosystems in which they live. In addition to having the ability to sequester large amounts of carbon dioxide, they provide other services for plants and animals. The whitebark pine (*Pinus albicaulis*), for example, provides other species with shelter and food, including nuts for grizzly bears and the Clark's nutcracker, a large bird that co-evolved with the whitebark pine over millions of years.

However, pests and climate stress are threatening this iconic conifer of the American West. Jennifer Gruhn, a graduate student at Washington University in St. Louis working at the Garden, is collaborating closely with the U.S. Forest Service to prevent the whitebark pine's extinction. By collecting and preserving genetically different populations and modeling future distributions under predicted climate change models, Gruhn is studying natural resistance to some of these threats and helping the Forest Service prioritize their efforts to restore whitebark pine communities around the country.

Conifers also provide humans with valuable services, including building materials, fuel, food, and medicine. In the Tibetan sacred mountain of Khawa Karpo, conifers are essential to the local communities' everyday lives. "China and the Himalayas are hotspots of conifer diversity, with many species and genera," says Robbie Hart, Research Specialist at the Garden's William L. Brown Center. "And almost all of the species are used by the people living there." The trees are burned for spiritual incense. Their wood is used to create building tools and material for homes. Pine nuts are a valued food, and resin is used for medicinal purposes.

Conifers at Shaw Nature Reserve



The Pinetum in 1941 (Garden archives)

After the Garden acquired the land in Gray Summit, Missouri, that is now Shaw Nature Reserve, creating the Pinetum area was one of the first projects. Between 1925 and 1927, the staff planted pine, fir, spruce, cypress, and juniper from all over the world around the Pinetum Lake. Some 450 species and 22 genera of conifers were tested over the next 20 years, supplying a vast amount of information about the culture and suitability of conifers in the area. "With the exception of the Junipers, we are able to grow more varieties of Pine than any other conifer," wrote then-Reserve Manager August P. Beilmann in a 1944 issue of the *Bulletin,* reflecting on the tests. "The very best of all is White Pine (*P. strobus*) and the most difficult to grow is the Short-leaf (*P. echinata*), the only pine native to Missouri."

Today, the landscape looks much different. As Reserve Director John Behrer explains, many of the conifers didn't survive because of either disease or harsh environmental conditions. These non-native conifers struggled to survive, and Reserve staff has been actively removing some of them as they begin to show signs of stress.

Through careful ecological restoration efforts, the Reserve is currently developing a prairie with scattered oak groves where most of the Pinetum conifers once were. Dr. James Trager, Restoration Biologist at the Reserve, notes that one can still enjoy conifers in the groves of bald cypress around Pinetum Lake and at the wetlands boardwalk, of eastern white and short-leaf pines on the higher ground of the former Pinetum, and red cedar in fields and natural woodlands around the Reserve.



Dr. Salick and her team study Himalayan plants, including conifers like the firs shown here in the background. Their research focuses on the threats these plants face and on how their survival is important not only to conserve biodiversity but also to preserve the local culture. (photo by Robbie Hart)

Senior Curator Dr. Jan Salick, in collaboration with The Nature Conservancy, has also been studying the relationship between sacred sites, such as Khawa Karpo, and larger, old growth conifers. Their research shows that the sanctity of these sites helps preserve forest structure, and their findings are helping lead conservation efforts in the Himalayas. "This is the most forested area in China and it is nearly as diverse as the tropics," Dr. Salick says. "So for conservation purposes, the Himalayas are crucial."

Where To Find Them at the Garden

During your next visit to the Garden, be sure to visit the Kassabaum Dwarf Conifer Garden, featuring hardy, dwarf-growing conifers for the Midwest. Also, look for some of our most iconic conifer specimens on Garden grounds:

Wollemi pine (*Wollemia nobilis*) | Linnean House
Considered a "living fossil" because it has been dated to 200 million years ago in the fossil record.

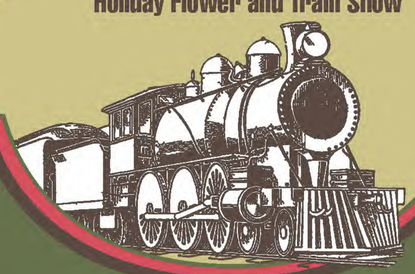
Dawn redwood (*Metasequoia glyptostroboides*) | several locations
Known only from fossils until living specimens were discovered in 1941 in China. In 1952 the Garden planted wild-collected seeds of the new discovery in front of the Lehmann Building, where they remain today.

Englemann spruce (*Picea engelmannii*) | Japanese Garden
Named for Henry Shaw's botanical adviser George Engelmann.

Bald cypress (*Taxodium distichum*) | several locations
Unusual among conifers, bald cypress trees drop their leaves in the winter (deciduous). Three bald cypresses along Alfred Avenue are the only remnants of Henry Shaw's Arboretum. Two rows of bald cypresses flank the lily pools in the Central Axis.

Norfolk Island pine (*Araucaria heterophylla*) | several locations
In the wild, it may grow as tall as 200 feet. As the one in the William T. Kemper Center for Home Gardening shows, it can also be grown in a pot indoors or planted in gardens as an ornamental. Although it is common in commercial trade, it is listed as "vulnerable" on the IUCN Red List.

2015 Gardenland Express
Holiday Flower and Train Show



Presented by WELLS FARGO ADVISORS

November 21–January 3

www.mobot.org/gardenlandexpress

Made possible by the Berges Endowment for Flower Shows.
Additional sponsorship by CBIZ and Mayer Hoffman McCann, P.C.



Behind the Show

Steve Feiner has been a volunteer at the Garden for 21 years. During that time, he's been behind some of the floral display shows' most memorable features: the animations.

A mechanical engineer by trade, he grew up fascinated with the window displays at some of downtown St. Louis's department stores. "When I was a kid, I always said: 'I hope someday I get an opportunity to do something like that."

Without giving too much away, he recommends checking out this year's animated features: the skiers on a mountain, the ice skaters, and a wedding cake.

always a busy WINTER



Contrary to common belief, winter is not a slow season at the Garden. There's much garden preparation and plant conservation work to be done.

photos by Sonya Lalla

After months of joyous planting, watering, and harvesting, winter seems like the perfect time to hibernate and wait for spring. But at the Garden, a horticulturist's work is never done, no matter how cold or snowy it gets. In fact, this is the time when the next few years' displays are starting to take shape.

For more than 150 years, beautiful plant collections and displays have connected the community to the Garden's global mission. Garden horticulturists use their knowledge of plant propagation and cultivation to develop conservation protocols. They maintain a living collection of more than 16,000 different kinds of plants that supports plant research and conservation. It includes a canopy of 5,000 trees; the historic orchid, cacti, and aroid collections; and hundreds of poinsettias and conifers for the holiday show. Horticulturists care for it all.





The cold doesn't keep horticulturists from tending to the Garden, including cleaning beds from wilting plant material (opposite), mulching, and pruning (above).

Most of the Garden's annual horticultural planning begins in the winter, including plant research, display design, maintenance, and propagation for the upcoming seasons. In fact, what horticulturists are planning for this winter is 2017—not 2016—and beyond. "There is a misconception that winter is downtime at the Garden," says Senior Manager of Horticulture Jim Cocos. "A lot of planning and behind-the-scenes work happens during these months."

Garden horticulturists spend a significant amount of time researching plants to grow the Garden's living collections. They focus on wild-collected plants and study their location, collection, and propagation data. "We try to find plants that not only enhance our collections but also help us connect our visitors to our mission," Cocos says. Winter is also when they browse different catalogs for new perennials, trees, and shrubs to add to the gardens.

Time not spent preparing next year's display gardens and helping with the annual holiday flower show and the Orchid Show is dedicated to removing snow or ice, mulching, pruning, cleaning tools, and taking inventory of every individual plant and updating the Garden's plant database. As Supervisor of Horticulture June Hutson explains, "winters are getting shorter—not because of the weather but because of how much time we have to prepare for spring."

The cold months are also some of the busiest in the Garden's greenhouses. Once the plants for the holiday flower show are moved to the display hall, the greenhouse team takes the opportunity to clean and sterilize the greenhouses. They start to propagate and carefully time more than 200,000 annual bedding plants and other plants to add to the living collection. "Not one winter is ever the same," says Nursery Supervisor Derek Lyle, "because we're never growing the same plants, and the growing conditions are never the same."

We ♥ Hort! All year long, expert horticulturists make the Garden a world-leading showplace for plants. Make a special year-end gift to support this incredible team of staff and volunteers at **www.mobot.org/donate**.



Derek Lyle inspects the *Amblyseius swirskii*, a predatory mite, that is released in the greenhouse to control thrips, a common pest affecting orchids. (photo by Monique Mullen)

Nature Keeping Pests In Check

Cleanliness. That's the one word that is always on Derek Lyle's mind. As Nursery Supervisor at the Garden, the basis of all his work to keep plants healthy is having a clean greenhouse. It is also the foundation of the integrated pest management (IPM) system that has been in place at the Garden for the past five years. Without cleanliness, no beneficial insect or biopesticide can keep up with the constant threat of pests.

IPM involves a combination of effective and environmentally sensitive practices to control common pests that threaten the living collections in the greenhouses. The Garden's plan includes human interaction (cleaning, sterilizing), mechanical controls (spraying biopesticides), and biocontrols, meaning beneficial insects and reptiles that prey on pests. "With the push for more sustainable options and the industry pushing for green standards, there are more options and opportunities to educate yourself about IPM than ever before," Lyle says.

He and his team use this multi-pronged approach on the Garden's orchid, cacti, and aroid collections; the tropical foliage; the stock plants; and the wild-collected specimens—70% of the greenhouses are under IPM. In fact, the orchids and the poinsettias, both key to the Garden's annual Orchid Show and Holiday Flower and Train Show respectively, have not been sprayed with synthetic pesticides since the program started. "The 2015 Orchid Show is the cleanest show we've ever had," he says. "We've invested so much into this program, and we're now reaping the benefits. We're seeing the results every day."

Implementing an IPM plan is not limited to large-scale greenhouses like the Garden's. Just like learning about the right type of soil, light conditions, and water requirements for their plants, home gardeners can learn about using beneficial insects to control pests. The Garden's Horticulture Answer Service, Plant Doctors at the William T. Kemper Center for Home Gardening, and gardening website **www.mobot.org/gardeninghelp** offer a wide variety of resources for anyone looking to implement IPM at home.

Learn more! Don't miss Derek Lyle's IPM class this summer. Class information available February 1 at **www.mobot.org/classes**.



A lawyer by trade, Bousquet found his love for plants and gardening through the learning opportunities for adults that the Garden offers. (photo courtesy of Patrick Bousquet)

Journey of a Gardening Student

Somewhere between taking depositions and arguing cases in court, Patrick Bousquet finds time to grow vegetables and fruits in his backyard and on his plot in the Soulard Garden Co-Op. In all his years in law school, he never thought he would one day become a Master Gardener. "I was looking for something to help me decompress from my job," he says.

He was first introduced to the Garden in 2006 when he and his family moved to St. Louis and enjoyed the Whitaker Music Festival. As he became more interested in his community garden and gardening in general, he knew the Garden would be the best place to start. "I didn't know anything about gardening before taking a class at the Garden," Bousquet says. "Now I immerse myself in gardening."

He describes the Garden as "the single greatest resource for a gardener," offering beginners and advanced-level gardeners alike unique opportunities to learn. Whether its online through the Help for the Home Gardener and Plant Finder webpages, on-site at the William T. Kemper Center for Home Gardening, or a class, the Garden's resources cover gardening tools and landscape design and everything in between.

It was also through a class that he became more involved in promoting the Garden's mission as a volunteer. At his first organic gardening class, he ran into his friends Clay and Sara Gillette. They introduced him to the Young Friends of the Missouri Botanical Garden, a volunteer group of young professionals. He joined the group in 2011 and is now a member of the Young Friends Council. As his interest in the Garden grew over the years, so did his love for gardening. In 2015 he joined the St. Louis Master Gardener Program, an advanced program established by the Garden in partnership with the University of Missouri Extension.

After the course on native plants, Bousquet says he now visits Shaw Nature Reserve more often and wants to learn more about how to incorporate them into landscapes. "Everything I know about gardening I've gotten from my learning experiences at the Garden," he says. "It is an invaluable resource for the community."

Learn more! Check out our classes, gardening resources, and info about the Master Gardener program at **www.mobot.org/adultclasses**.

Member Events

Garden Glow Member Preview

Friday, November 20; 5–9:30 p.m.

Preview includes both Garden Glow and Gardenland Express. Timed tickets available. $12 member adults; $6 member children. Advance ticket purchase required. Enjoy 20% off new, renewing, or gift memberships at the event.

Holiday Wreath Display and Auction

Saturday, November 21, 2015–Sunday, January 3, 2016; Ridgway Visitor Center

View unique creations donated by some of the area's finest floral designers. Wreaths are sold by silent-auction bidding, with proceeds benefiting the Garden's Horticulture department.

Supper with Santa

Sophia M. Sachs Butterfly House; December 5, 6, 12, 13, 19, and 20; 4:30–7 p.m.
Sponsored by Noodles & Company.

A holiday evening with butterflies! Includes pasta dinner, Conservatory tours, crafts, photos, and Santa. $15 members; $20 nonmembers. Advance ticket purchase required. **www.butterflyhouse.org/santa.**

2016 Orchid Show Preview

Friday, February 5; 5:30–8:30 p.m.; Orthwein Floral Display Hall

See it first! Explore the show with research and horticulture experts. Cash bar available; 20% off new, renewing, and gift memberships; 20% off at the Garden Gate Shop. Sassafras open.

Member Day: Top 10 Orchids for the Home

Saturday, February 6; 11 a.m.–noon; Shoenberg Theater

Learn a few simple rules to grow orchids at home. Special presentation by St. Louis Master Gardener and volunteer for the Garden's orchid range Carol Gravens. Reservations required.

Member Day: Indoor Gardening

Tuesday, February 9; 11 a.m.–noon; Shoenberg Theater

Learn the tools and techniques for creating and maintaining an indoor garden from Barbara Giblin, professional horticulturist and Sales Manager at Ritter Greenhouse, LLC. Reservations required.

World Exploration: Behind the Science with Garden Botanists

Saturday and Sunday, February 20–21; 1–4 p.m.; Monsanto Research Center

Enjoy an open house of the Garden's research center, library, and herbarium. Meet Garden botanists; see pressed and preserved plant specimens; view rare, illustrated botanical texts; and learn about global plant conservation. Event is free and open to the public. Reservations recommended.

Trivia Night—Garden Style

Saturday, February 20; 6–10 p.m.; Ridgway Visitor Center

Grab your team and join the Young Friends of the Garden for 10 rounds of trivia. Enjoy admission to the Orchid Show, a wine pull, silent auction, 50/50 raffle, and attendance prizes. Proceeds support the Children's Garden. $300 per table of 10. Attendees must be at least 21. Advance tickets required.

Member Day: Composting

Tuesday, February 25; 11 a.m.–noon; Shoenberg Theater

This lively talk with Jean Ponzi will show how compost is produced at a business scale. Compost is proving the rotten truth that Zero Waste is possible when we learn from nature. Reservations required.

Travel with the Garden to Portugal

May 12–21, 2016

Enjoy a 10-day trip featuring the lush gardens and landscapes of Portugal. Join us for some amazing experiences!

Travel reservations and tickets required: **www.mobot.org/travel.**

Learn More!

Come to a presentation featuring photos of the locations to learn more about the trip: Thursday, January 7; 2 p.m.; Shoenberg Theater; Ridgway Visitor Center.

Event information and registration at (314) 577-5118 or **www.mobot.org/memberevents** unless otherwise noted.

Shop & Dine

Membership Sale

December 2–6
Enjoy 20% off new, renewing, or gift memberships and a 20% discount at the shops. Visit the Membership Services Desk at the Garden, the Butterfly House, or Shaw Nature Reserve; visit **www.mobot.org/membership**; or call (314) 577-5118.

First Fridays

First Friday of the month; Garden Gate Shop
Discover something new—from book signings to food samplings to trunk shows. More information at **www.mobot.org/shop**.

Staff and Volunteer Sales

December 10–14 and February 19–21; Garden Gate Shop, Butterfly House Gift Shop, and Little Shop Around the Corner
As a thank you for making the Garden a world-class institution, all Garden staff and volunteers receive an extra 10% off their purchases.

Garden Gift Gala

December 11; 2–9 p.m.; Garden Gate Shop
Need great local, unique gifts? We have them! Members get 20% off any purchase at the Gala or shop. Vendors include candy and chocolate makers, jewelry artists, authors signing books, and more. Shop local and support the Garden!

End of Year Clearance Sale

December 26, and 29–31; Little Shop Around the Corner
Start the year off right with unique vintage items for your home. Everything in the shop is 40–60% off.

Holiday Sale

December 26–January 3; Butterfly House Gift Shop
Enjoy 50–75% off holiday décor items. Please note, the Butterfly House Gift Shop will be open December 31 and January 1 until 2 p.m.

Hot! Hot! Hot! Sale

January 30–31 and February 6–7; Butterfly House Gift Shop
Escape the cold and join us for our Hot! Hot! Hot! celebration and sale. All visitors receive a 20% discount, and members receive an additional 10% off.

Member Days Sale

February 12–14; Garden Gate Shop, Butterfly House Gift Shop, and Little Shop Around the Corner
All Garden members receive 20% off purchases in the shops.

Annual Grand Reopening

February 2–6; Little Shop Around the Corner
Check out our new inventory! Members enjoy an additional 10% off storewide.

Featured Item



VINTAGE BOTANICAL COLLECTION

The botanical illustrations that decorate these items come from a rare book in Dr. Peter Wyse Jackson's private library collection. The line includes tea towels, pot holders, tote bags, pouches, aprons, a teacup and saucer set, mug, creamer, sugar bowl, and teapot. Prices range from $10 to $50. Get yours at the Garden Gate Shop today.

Winter Closings

- The Little Shop Around the Corner is closed in January and reopens February 2.
- The Butterfly House is closed January 4–29 and reopens January 30 for Hot! Hot! Hot!
- The Garden Gate Shop and Sassafras are closed January 4–8 and January 11–15. They remain open on weekends. Terrace Café is open those weekdays as an alternative dining option.

photo by Nathan Wagner

Garden Gate Shop
4344 Shaw Blvd.
St. Louis, MO 63110
Monday–Sunday
9 a.m. to 5:30 p.m.
(314) 577-5137

Butterfly House Gift Shop
15193 Olive Blvd.
Chesterfield, MO 63017
Tuesday–Sunday
10 a.m. to 4 p.m.
(636) 530-0076 ext. 15

Little Shop Around the Corner
4474 Castleman Ave.
St. Louis, MO 63110
Tuesday–Saturday
10 a.m. to 4 p.m.
(314) 577-0891

The Story of the Garden's Herbarium



What started in 1857 with 62,000 specimens from Bernhardi's estate has grown to more than 6.6 million, and is now one of the largest in the world. (photo by Molly Krohe)

On a cool September morning, Dr. Jim Solomon, Curator of the Herbarium, opened one of the steel cases that had just been unloaded and pulled out a sheet with a dried sedge mounted on it. This *Carex stipata*, along with the other 200,000 specimens from the University of Missouri–Columbia's (MU) Dunn-Palmer Herbarium that had just arrived, will be gradually added to the Garden's own collection.

As some herbaria around the world struggle to stay afloat due to budgetary or infrastructural issues, the Garden's Herbarium continues to grow. It started with 62,000 specimens from Johann Bernhardi's estate. Dr. George Engelmann purchased them in 1857 for Garden founder Henry Shaw. Today, with more than 6.6 million specimens, the Herbarium is the second largest in the United States and one of the largest in the world. "This new addition from MU will increase the depth and quality of information available from our collection," says Dr. Solomon.

Shaw kept the first specimens in his Museum; they were later moved to his Town House, which had been rebuilt on Garden grounds according to his will. By the 1970s, having outgrown that space, the two million specimens were moved to the newly built Lehmann Building. In 1997, half of the collection stayed there while the other half was moved to the new Monsanto Research Center.

Today, the Herbarium continues to be a key resource for scientists. Keeping it organized and accessible is the main job of herbarium assistants like Lauren Peters, who joined the Garden three years ago and fell in love with the Herbarium. "I get to go on scavenger hunts for researchers, sometimes finding gems in our collection," she says. For Peters, working at a world-renowned institution is more than a job. "This is where new species are discovered," she says. "Botanists go on big adventures to collect plants, but it's not until they get back and study the herbarium specimens that their work is completed."

See It Yourself! Take a free tour of the Garden's research center, library, and herbarium February 20–21. See page 18 for more details.

Commemorative Gifts

July–September 2015.
A commemorative gift is a wonderful way to honor family and friends. Gifts of $50 or more are listed in the *Bulletin*. For more information about giving opportunities at the Missouri Botanical Garden, please call (314) 577-5118 or make a commemorative gift at **www.mobot.org/tributes**.

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Russell Powers
Friends at WGHS

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John Rayne
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Mrs. Nora Stern

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Ruth Sivon

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Mr. Howard Wilkinson, Jr.
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Members' Entry Court

July–September 2015.
For more information, call (314) 577-5118 or visit **www.mobot.org/donate**.

Bronze Bricks

Jackie Juras
St. Louis Master Gardeners

Mary Anne Lucas
Timothy and Beth Bates
Mr. and Mrs. Timothy Lucas
Jennifer and Ryan Blum
Kelley Lucas Burke
Gary Lucas

Engraved Clay Bricks

Melanie Boelter
Friends at RGA

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Ms. Stephanie M. Meyer

Pat Hoffman Byrne Family
Byrne Family

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Verna Lillian Rogers
Ronna Moran

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Missouri Botanical Garden

Agnes and Susie Zalaudek
Susan Zalaudek

Butterfly House

July–September 2015.
Call (314) 577-5118 or visit **www.butterflyhouse.org/donate** to learn more.

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Smith Ernesto Eden Fajuri
Mr. and Mrs. Charles D'Arcy Fox

Troy and Gay Kendrick
Mrs. Holly Bird

Joe Malik
Karen Abernathy Malik

Ramona Menscher
Nan McCabe

William T. Moorman
Ms. Lucy Moorman

Ms. Mike Patten
Julie Rodgers

Sandy Reagan Tiefenbrun
Michelle Reagan

Natalie Timm
Sam and Carol Powell

Edward Van Voorn
Mimi Ladendecker

A Tribute to Volunteer Spirit

When Jackie Juras retired from her 14 years as the Garden's Volunteer Program Manager, one of her last acts was to make a commemorative tribute gift in honor of the Garden's dedicated volunteers. This gift, she explained, was "in celebration of their incredible generosity of spirit, passion for, and commitment to the Garden."

Garden volunteers are an incredible group of talented individuals. They support all aspects of the Garden's mission, from answering visitor questions and leading tours to pruning roses and mounting herbarium specimens. Together, they do the work of 76 additional, full-time staff members. The Garden would not be the world-leading cultural center it is today without their contributions.

The Garden would like to take this opportunity to echo Jackie's sentiments and express our gratitude for our incredible volunteers.

Join the team! The Garden always has a variety of opportunities for volunteers, even over the winter months. Visit **www.mobot.org/volunteer** to learn more.



Diane Grubbs (left), President of the St. Louis Master Gardener Advisory Council, presents a symbolic brick gift to Jackie Juras (right), Volunteer Manager at the Garden, at her retirement party in September. (photo by Claire Cohen)

Heritage Society



John and Ann Bieller: Maintaining the Future

A visit to the Missouri Botanical Garden takes you through a variety of landscapes from across the globe—and that's one of the main things John and Ann Bieller like about it. Both of them have memories of visiting the Garden as children with school and family, and they enjoyed coming together as a young married couple. "I remember the construction of the Climatron® and visiting the Desert House too," John says. "Later in life, when we travelled, it was so interesting to see those same plants in their native environments."

The Garden engaged John and Ann with the diversity of the botanical world. It also helped John in his professional life. In the 1960s, he worked with Ameren as an assistant gardener and retired many years later as the manager of forestry. Throughout his career, he connected with Garden experts for advice. "I got to know a lot of great people on the Garden staff, like Ben Chu and Steve Kline," John says. "In turn, I was able to connect Ameren to some great projects at the Garden. Ameren was involved with the Ameren Groundcover Border and supported the development of the [William T.] Kemper Center for Home Gardening."

The couple enjoys taking out-of-town friends to the Garden and the Sophia M. Sachs Butterfly House, where they particularly appreciate the development of the outdoor native butterfly garden. They also understand the Garden's role beyond our community. "As much as I like seeing my money working locally," John says, "I also appreciate the Garden's work outside the country." Ann shared an example after a visit to Peru a few years ago. "We were staying at an eco-lodge and exploring the upper Amazon," she says. "Our guide was telling our group about a researcher from the United States who was working on projects with the local people. The team was very excited about a plant that had been discovered in the region that might have cancer-fighting properties. That researcher was from the Missouri Botanical Garden."

John and Ann enjoy watching the Garden grow through the years. "We had the Garden in our will for a long time," John says, "but we didn't think to say so. We appreciate seeing the Garden so well maintained, the history preserved at the same time new things are added—like reopening Shaw's Museum and creating Garden Glow. We want to see things keep going, and for us, that means joining the Heritage Society." Ann agrees, "For me, it's giving back to the community and understanding what I've gotten out of it. There's a quote about this in the Carver Garden that resonates with me." That quote, by George Washington Carver, is: "No individual has any right to come into the world and go out of it without leaving behind him distinct and legitimate reasons for having passed through it."

photos by Kristine Gruver and Josh Nezam



Create a legacy

Many of the Garden's closest friends choose to support the Garden beyond their lifetimes with a planned gift as a part of the Heritage Society. These special gifts:

- build on the gift of Garden founder Henry Shaw.
- come in a variety of types and sizes.
- offer many benefits to the donor.
- create a legacy with the Garden that lasts beyond your lifetime.

To learn more about the types of planned gifts, visit **www.mobot.org/plannedgiving**. For more information about the Heritage Society or to discuss a planned gift, please contact Joyce Pluhar at (314) 577-5199 or **plannedgiving@mobot.org**.

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greener tomorrow

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Missouri Botanical Garden
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PERIODICALS
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ORCHID SHOW
February 6–March 27
www.mobot.org/orchidshow

photo by Hayden Andrews

Valentine's Night Hike

at Shaw Nature Reserve

February 13

www.shawnature.org



Trivia Night

Garden Style

February 20

www.mobot.org/trivia



Orchid Show

Where Wild Things Grow

February 6–March 27

bulletin calendar

December | January | February



www.mobot.org/events

GARDEN GLOW

NOV 21–JAN 2

5 to 9:30 p.m.

Presented by

WELLS FARGO ADVISORS

www.mobot.org/glow

The Garden will be ablaze with ONE MILLION stunning lights in our new and expanded displays! Explore pathways transformed into sensory light tunnels providing an explosion of visual magic. Our traditional candlelight village—bigger and better than before—will delight crowds of all ages.

ADMISSION

$16 adults* (ages 13 and older); $12 members*

$10 children (ages 3 to 12); $6 members children

**price increases by $2 starting December 18*

DON'T FORGET!

MEMBER PREVIEW

Friday, November 20

5–9:30 p.m.

Advance ticket purchase required: www.mobot.org/memberevents

PLUS!

FAMILY NIGHTS

Select Wednesdays (November 25, December 2, 9, and 16)

Garden Glow tickets for children are just $3!

Signature Location sponsorship by The Boeing Company, Lelia and David Farr, Monsanto, and PNC Bank.
Special Venue sponsorship by Ameren Corporation, Bunge North America, Maritz, and Moneta Group—Dan and Peggy West.

2015 Gardenland Express

Holiday Flower and Train Show

Presented by

WELLS FARGO ADVISORS

November 21–January 3

www.mobot.org/gardenlandexpress

Made possible by the Berges Endowment for Flower Shows.
Additional sponsorship by CBIZ and Mayer Hoffman McCann, P.C.

Winter Jewels

November 27–January 3

at the Butterfly House



www.butterflyhouse.org

MEMBERSHIP SALE

December 2–6

Enjoy 20% off new, renewed, or gift memberships. Plus, get a 20% discount at the shops. Visit the Membership Service Desk at the Garden, Butterfly House, or Shaw Nature Reserve; call (314) 577-5118; or visit www.mobot.org/membership.

December 2015

average temperature: low 27°, high 42°
average precipitation: 2.56 in.

What's in bloom?


Lady of the night


Cyclamen


Winterberry

11/18–1/3	Victorian Christmas at Tower Grove House, Wednesdays through Sundays. 10 a.m. to 4 p.m.
11/20	Garden Glow Member Preview, 5 to 9:30 p.m. ☎ $
11/21–1/3	Gardenland Express "Conifers of the World," *through January 3.* Free for members. RVC *Presented by Wells Fargo Advisors.*
11/21–1/3	Holiday Wreath Auction, 9 a.m. to 4 p.m. RVC
11/27–1/3	Winter Jewels, 10 a.m. to 3 p.m. BH
11/30	Member Day: Winter Jewels, 10 a.m. to noon ☎ BH
12/2–12/6	Membership Sale: 20% off new, gift, and renewed memberships, on-site MBG, BH, SNR; by phone at (314) 577-5118, or at www.mobot.org/membership.
12/5	Breakfast with Santa, 8 to 10:30 a.m. ☎ $ RVC *Presented by Macy's*
12/5–12/6	Supper with Santa, 4:30 to 7 p.m. $ ☎ BH *Sponsored by Noodles & Company.*
12/5–1/3	Holiday Trimmings at the William T. Kemper Center for Home Gardening, 9 a.m. to 4 p.m. KC
12/6	Chanukah: Festival of Lights, noon to 4 p.m. RVC
12/11	Garden Gift Gala, 2 to 9 p.m.; JE, GGS
12/12	Saturday with Santa: Christmas Carols in the Garden, 1 to 4 p.m. RVC, SP
12/12–12/13	Supper with Santa, 4:30 to 7 p.m. $ ☎ BH *Sponsored by Noodles & Company.*
12/13	Corporate Partners Day, 9 a.m. to 4 p.m.
12/19–12/20	Supper with Santa, 4:30 to 7 p.m. $ ☎ BH *Sponsored by Noodles & Company.*
12/26	End of Year Clearance Sale, 10 a.m. to 4 p.m. LS
12/26–1/3	Holiday Sale, BHGS
12/29–12/31	End of Year Clearance Sale, 10 a.m. to 4 p.m. LS
12/30	Kwanzaa: Festival of the First Fruits, 11 a.m. to 3 p.m. RVC

10% OFF **Any Orchid Purchase of $75 or More**
Valid only for purchases made January 1–March 31, 2016. Limit one offer per purchase. See shop for details.
Garden Gate Shop

January 2016

average temperature: low 21°, high 38°
average precipitation: 2.01 in.

What's in bloom?


Camellia


Witch hazel


Nodding violet

11/18–1/3	Victorian Christmas at Tower Grove House, Wednesdays through Sundays. 10 a.m. to 4 p.m.
11/21–1/2	Garden Glow, 5 to 9:30 p.m., *through January 2.* $ *Presented by Wells Fargo Advisors.*
11/21–1/3	Gardenland Express "Conifers of the World," *through January 3.* Free for members. RVC *Presented by Wells Fargo Advisors.*
11/21–1/3	Holiday Wreath Auction, 9 a.m. to 4 p.m. RVC
11/27–1/3	Winter Jewels, 10 a.m. to 3 p.m. BH
12/5–1/3	Holiday Trimmings at the William T. Kemper Center for Home Gardening, 9 a.m. to 4 p.m. KC
12/26–1/3	Holiday Sale, BHGS
1/1–2/2	Little Shop Around the Corner is closed, *through February 2.* LS
1/4–1/29	The Butterfly House will be closed, *through January 29.*
1/4–1/8	Garden Gate Shop and Sassafras closed; Terrace Café open as an alternative dining option
1/11–1/15	Garden Gate Shop and Sassafras closed; Terrace Café open as an alternative dining option
1/30	The Butterfly House reopens, 10 a.m. to 4 p.m. BH
1/30–1/31	Hot! Hot! Hot!, 10 a.m. to 3 p.m. BH



February 2016

average temperature: low 26°, high 45°
average precipitation: 2.06 in.

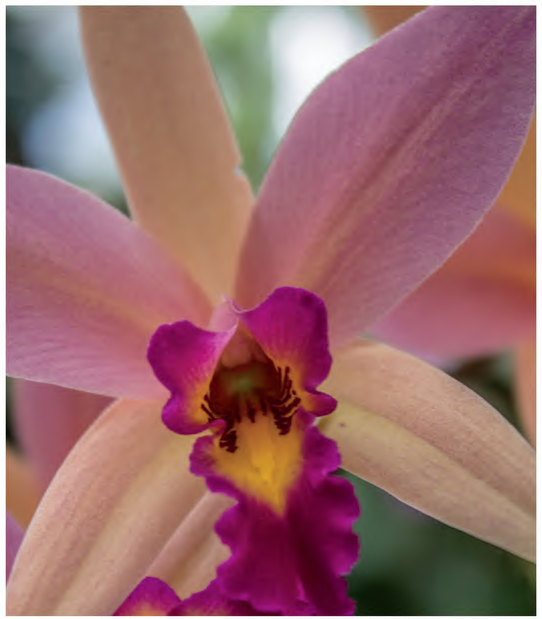
What's in bloom?


Bulbine


Snowdrop


Kalanchoe

1/1–2/2	Little Shop Around the Corner is closed, *through February 2.* LS
2/6–3/27	Orchid Show "Where Wild Things Grow" 9 a.m. to 5 p.m. *through March 27.* Free for members. RVC
2/5	Orchid Show Preview, 5:30 to 8:30 p.m. RVC
2/6–2/7	Hot! Hot! Hot!, 10 a.m. to 3 p.m. BH
2/6	Member Day: Top 10 Orchids for the Home, 11 a.m. to noon ☎ ST
2/9	Member Day: Indoor Gardening, 11 a.m. to noon ☎ ST
2/12–2/14	Member Days 20% Sale at the shops. GGS, BHGS, LS
2/14	Celebrate the Gospel, 3 p.m. RVC
2/20–2/21	World Exploration: Behind the Science with Garden Botanists, 1 to 4 p.m. MC
2/20	Trivia Night—Garden Style, 6 to 10 p.m. $ ☎ RVC
2/25	Member Day: Composting, 11 a.m. to noon ☎ ST



Don't forget!



Holiday Wreath Display and Auction

November 21–January 3; Monsanto Hall

View unique wreath creations from florists across our community. Place a silent-auction bid on your favorites! All proceeds benefit the Garden's Horticulture Division.



World Exploration: Behind the Science with Garden Botanists

February 20–21; 1–4 p.m.; Monsanto Research Center

Tour the Garden's research center, library, and herbarium while meeting Garden botanists. Free and open to the public. Reservations recommended: **www.mobot.org/memberevents.**



Plant Societies Shows and Sales

Get the latest information about your favorite plant society's show and sale by visiting **www.mobot.org/plantsocieties.**

KEY (All events take place at the Garden unless otherwise noted.)

BH	Butterfly House	KC	Kemper Center for Home Gardening
BHGS	Butterfly House Gift Shop	LS	Little Shop Around The Corner
CA	Cohen Amphitheater	MC	Monsanto Research Center
CBEC	Commerce Bank Center for Science Education	MH	Monsanto Hall (in RVC)
CHD	Children's Garden	RVC	Ridgway Visitor Center
CL	Climatron lawn	SNR	Shaw Nature Reserve
GGS	Garden Gate Shop	SP	Spink Pavilion
JE	Jordan Education Wing (in RVC)	ST	Shoenberg Theater (in RVC)

Sassafras
Members-only event
20% Member discount at the shops
☎ Reservations required
$ Fee required

photos by (front) Kat Niehaus, Maddy Gordon, and Tom Incrocci (this page) Lisa Francis, JJ Mueller, Maddy Gordon, Mary Lou Olson, Lisa DeLorenzo Hager, and Kerri Carter.

bulletin

Missouri Botanical Garden

Spring 2016
Vol. 104, No. 2
www.mobot.org



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A generous donation offers much-needed acres for nursery operations.

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Thank you! Your membership provides critical support for our international and local plant science and conservation work, and Garden memberships contribute 20% of our annual operating funds.
To learn more about the benefits of your membership, visit www.mobot.org/membership, email membership@mobot.org, or call (314) 577-5118.

hours and admission
For hours and admission prices at our three locations, visit www.mobot.org, www.butterflyhouse.org, and www.shawnature.org.

contact
Missouri Botanical Garden
4344 Shaw Blvd.,
St. Louis, MO 63110
(314) 577-5100 • www.mobot.org

on the cover
Daffodil season is here! Find out all the different ways to celebrate this springtime favorite on page 8.
Photo by Maddy Gordon.

credits
Editor/Designer: Andrea Androuais

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To discover and share knowledge about plants and their environment in order to preserve and enrich life.

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photos by Kat Niehaus, Monique Mullen, and Paul Straatmann

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photo by Koraley Northen

from the president



Spring is always an exciting time at the Missouri Botanical Garden, Sophia M. Sachs Butterfly House, and Shaw Nature Reserve. Just as the warmer temperatures bring new life to the world around us, the season also brings new and exciting offerings for our visitors.

First, you'll notice the *Bulletin* has a fresh new look. It has been reimagined to offer you a more enjoyable reading experience and easier access to the stories and information you want to know. With new sections such as "What Can You Do?" (see page 8) and "Just for Members" (see page 18), the *Bulletin* is truly your guide to all the wonderful ways you can connect with the Garden and the world of plants.

Spring also means the reopening of some of our iconic spots and the announcement of new ones. On April 2–3, we invite you to our "Meet Me (Outdoors) in St. Louis" event, where we'll kick-start spring by celebrating the great outdoors (see page 9), commemorate the 10th anniversary of the Doris I. Schnuck Children's Garden, and debut the renovated Brookings Exploration Center and the new greenhouse-like classroom (see page 10). You can also learn about the new Oertli Family Hardy Plant Nursery, which will greatly enhance our horticulture and conservation work (see page 16).

I am also pleased to share that the Garden's efforts are being recognized in a recent progress report by the U.N. Convention on Biological Diversity regarding the Global Strategy for Plant Conservation (GSPC). The Garden has played an important role in the development and implementation of the GSPC and has incorporated it in a fundamental way into its programs. Our work is closely integrated with community development, poverty alleviation, and the development of greater socio-economic incentives for plant diversity conservation. I look forward to sharing more of our stories with you.

Finally, be sure to also read about the exciting changes coming to the membership program this spring (see page 14). Through the years, you've told us what you value and how you use your membership benefits. These enhancements reflect not only your feedback but also our commitment to optimize your experience and to celebrate the role you play in our successes. On behalf of the Garden, thank you!



Dr. Peter Wyse Jackson, *President*

what's new?



Senator Nasheed expressed her interest to Senior Vice President of Science and Conservation Dr. James Miller in connecting underrepresented students to science.

Missouri State Senator Visits the Garden's Research Facilities

Senator Jamilah Nasheed (D–St. Louis) visited the Garden on November 16 as part of the 7th Annual Biological Sciences Congressional District Visits event organized by the American Institute of Biological Sciences. The goal of this nationwide initiative is for scientists to engage public officials and showcase the people, facilities, and resources needed to conduct research.

During her visit, Sen. Nasheed toured the Garden's Herbarium, lab, and Library in the Monsanto Research Center. She met with Garden scientists as well as research associate Dr. Allison Miller and graduate student Stephen Callen from Saint Louis University.

Stumped? It's Just the Newest Addition to the Garden

Next time you're walking by the Shoenberg Administration Building on the south end of the Garden, you may notice tree stumps and logs laying on the ground. Often considered waste, these structures are being used to create a new stumpery garden, characteristic of the English romantic period in the 19th century and very popular in the U.K. today.



These gardens emphasize the beauty of nature by utilizing the nooks and crannies of upturned tree roots to create ideal conditions for growing a variety of ferns, mosses, and shade-loving plants. Most of the stumps are eastern red cedar from Shaw Nature Reserve, which has been replacing these invasive native trees with other well-behaved native plants as part of its ecological restoration efforts.

Board of Trustees Elects New Members

Three new members joined the board in December.



Kirk A. Imhof
Chief Diversity Officer / Vice President, Talent Acquisition at Centene Corporation



Chris Lewis
General Counsel at Edward Jones



Dr. Jeff Pittman
Chancellor at St. Louis Community College

One Step Closer to Online Flora Goal

Garden representatives traveled to Brazil in October for the latest meeting on the World Flora Online (WFO), which, thanks to the support of the Monsanto Company, aims to have an online flora of all known plants by 2020. The WFO Council discussed recommendations and action plans to achieve its goal and expects to have a functioning portal by this spring.

Garden President Dr. Peter Wyse Jackson was re-elected chair of the WFO Council, and Pierre-André Loizeau, of The Conservatory and Botanical Garden in Geneva, was elected co-chair. The Garden's Chuck Miller was re-elected chair of the Technical Working Group, and Mark Watson, of the Royal Botanic Garden Edinburgh, was elected co-chair. The next meeting will be in New York this April.

photos by Monique Mullen

Garden to Expand Nursery Operations Starting This Spring

The Oertli family has donated 6.38 acres of land to the Garden to create the Oertli Family Hardy Plant Nursery. The new space, located several blocks south of the Garden on the west side of Bent Avenue, will allow the Garden to grow hardy herbaceous perennials and woodies for annual displays, with a focus on wild-collected specimens. To learn more about the Nursery, see page 16.

Continued Support for Sprouting Science in St. Louis



(from left) Boeing's Brittany Douglas; Garden President Dr. Peter Wyse Jackson; and Boeing's Jeff Sweet and Amber Hersh.

In December, The Boeing Company renewed its support to the Garden's *Sprouting Science in St. Louis: Digging Deep with Urban Youth*. The joint initiative with St. Louis Public Schools weaves early childhood education and urban biodiversity through classes, outreach, family engagement events, and professional development for teachers.

Garden Implements New Rain-Capturing Irrigation System

62,390
gallons of water the water storage vault holds



The three-year project repurposes an underground storage tank to capture rain water to irrigate the Temprate House and Climatron®. Together, the two conservatories use 500 to 1,000 gallons of irrigation water per day. The new system replaces the 200,000 gallons of city water used each year and the high-tech purification system that costs about $6,000 annually in maintenance.



photos by Rachel Weller and courtesy of Boeing

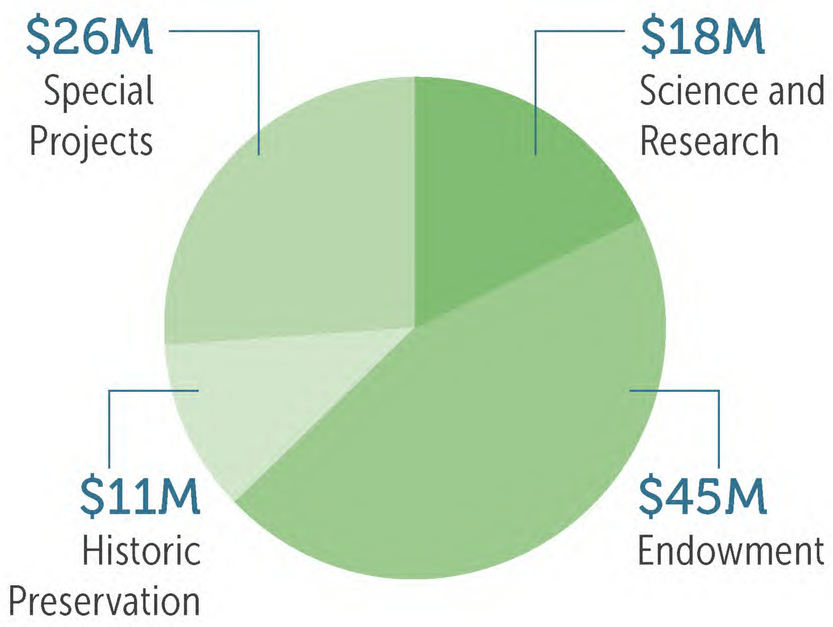
New Features at Family-Friendly Trail

Visitors exploring the Sense of Wonder Wooldand at Shaw Nature Reserve, located behind the Nature Explore Classroom, can now enjoy the new Tree-Ceratops climbing structure, a butterfly swing, a vine tunnel, critter apartments, and a critter hotel.

The critter hotel provides shelter for native wildlife.

$100 Million

The Oertli Family Hardy Plant Nursery is a project of the Garden's *Garden for the World* capital campaign. We are honored to share that the campaign has reached $100 million. This milestone represents an incredible commitment to the Garden and its future by thousands of generous donors. Here is a snapshot of where those funds are already making a difference.



Our work isn't done, and we will continue to raise funds for our most critical projects. To find out how you can help, please visit www.mobot.org/fortheworld.

Recent Recognitions for the Garden

- *Choice*'s Outstanding Academic Title for *No More Robots* by Dr. Bob Coulter, Director of the Garden's Litzsinger Road Ecology Center.
- Andrew Wyatt, Vice President of Horticulture and Living Collections, named to *St. Louis Business Journal*'s 40 Under 40.
- Royal Society of Biology's Postgraduate Textbook Prize for *Curating Biocultural Collections* by Senior Curator Dr. Jan Salick.
- The Associated General Contractors of Missouri 2015 Construction Heritage Award awarded to the Garden.
- Two Brassicaceae genera named in honor of Senior Curator Dr. Ihsan Al-Shehbaz.

did you know?



Garden Curator Invited to Paris

Dr. Salick has been working with indigenous peoples worldwide since 1973 and studying their interactions with climate change since 2000. Her work includes research in the Himalaya and Tibetan Plateau, a temperate biodiversity hotspot. The historic agreement reached on December 12 recognized for the first time the role of indigenous knowledge in understanding and addressing climate change.

Senior Curator of Ethnobotany Dr. Jan Salick was one of the scientists invited by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to present at a sponsored event leading up to the 21st Conference of the Parties (COP21) in Paris in December. At the two-day conference, indigenous peoples from all over the world and select scientists discussed how climate change action benefits from the inclusion of indigenous knowledge. "Indigenous peoples' traditional lifestyles are based on nature, and research shows they can provide insight into adaptation and mitigation," Salick says. "Local knowledge is something that meteorological models and projections can't capture."



Dr. Randrianarivony (left) and Dr. Rakotoarivelo (right) visited the Garden's Herbarium in 2011 as part of their training with the WLBC.

Garden Training Tomorrow's Plant Scientists

In November, Nivo H. Rakotoarivelo and Tabita Randrianarivony became the first doctoral students to receive a degree in ethnobotany from the University of Antananarivo in Madagascar. They are also the first PhD students to be fully financially supported by the Garden's program in Madagascar.

Since 2008 the Garden's William L. Brown Center (WLBC), as part of the Africa and Madagascar program, has supported and advised Malagasy students in their efforts to receive advanced degrees. For five years, the two students worked alongside WLBC staff doing field studies around two of the conservation sites managed by the Garden in Madagascar—Dr. Rakotoarivelo in the Vohibe forest and Dr. Randrianarivony in the Analavelona sacred forest.

As part of its capacity-building efforts, and thanks to the support of the Sehgal Family Foundation and Dr. Surinder Sehgal, the WLBC trains students in developing countries that are home to the majority of the world's plant species. Students learn in the field, at workshops, or through collaborative programs with universities, like the one with the University of Antananarivo.



Dr. John La Salle, Director of the Atlas of Living Australia, was one of the presenters at the climate change workshop.

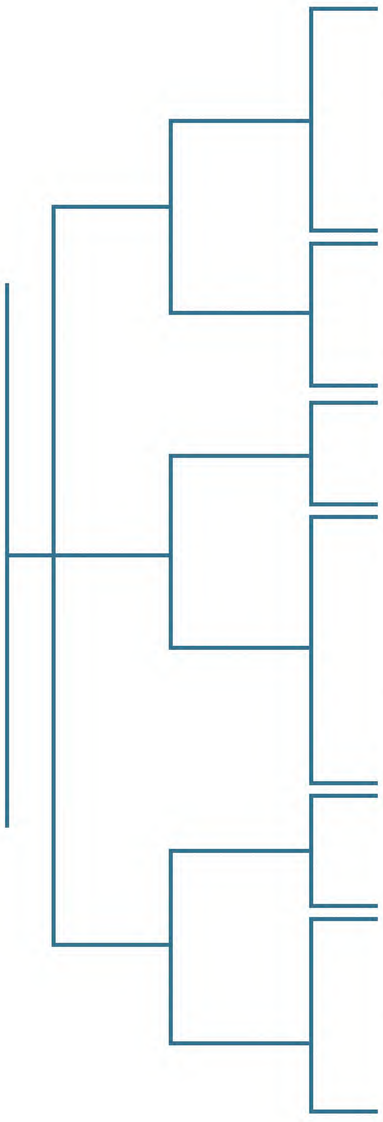
Garden Hosts International Climate Change Workshop

On December 2–3 the Garden hosted a workshop titled "Using Biodiversity Specimen-Based Data to Study Global Change" sponsored by the Integrated Digitized Biocollections (iDigBio), the National Resource for Advancing Digitization of Biodiversity Collections (ADBC) funded by the National Science Foundation.

Scientists from the U.S., U.K., and Australia discussed potential climate change questions that can now be addressed thanks to the data available through iDigBio, which supports networks of institutions around the world in creating millions of digital images and records from biological collections. The data will help answer questions such as *Could climate change affect the timing of flowering and emergence of plants' pollinators?* or *Have organisms moved geographically over the years in response to climate change?* "The answers may help us understand the effects of climate change now and in the future," says Dr. Adam Smith, Global Change Ecologist at the Garden's Center for Conservation and Sustainable Development. Learn more at www.mobot.org/plantscience.

photos by Molly Krohe and Kat Niehaus, and courtesy of Dr. Armand Randrianasolo

more than **180** new plant species described in 2015 by Garden scientists



What is the taxonomic impediment?

Taxonomy, a process of naming, describing, and organizing information about living things, is at the core of plant science. As any botanical taxonomist can tell you, without a name, a plant doesn't exist for science. "It could cure cancer, but if you don't know what it is, you can't go back and find more of it," Dr. Charlotte Taylor explains.

The taxonomic impediment, therefore, is defined by the UN Convention on Biological Diversity as "the knowledge gaps in our taxonomic system (including those associated with genetic systems), the shortage of trained taxonomists and curators, and the impact these deficiencies have on our ability to conserve, use, and share the benefits of our biological diversity."

Recent Grants Awarded to the Garden

$1,041,428 Model-BEST (Building Enhanced Scientific Thinking)
National Science Foundation

$150,000 Outreach and education programming at Shaw Nature Reserve for schools and families
Missouri Department of Conservation

$91,000 Midwest Clean Air Stewardship: Building Upon the St. Louis Ozone Gardens
Environmental Protection Agency

$57,000 Recycling Education
St. Louis Jefferson Solid Waste Management District

$49,457 Advancing cooperative conservation of key protected areas in Peru's Selva Central
U.S. Fish & Wildlife Service, Division of International Affairs

photo by Andrea Androuais



Plant Discovery by the Numbers

Dr. Charlotte Taylor, Curator

326 new plant species described to date

25 years as a plant taxonomist at the Garden

19 plant species new to science described in 2015

2 times she has discovered a new species while in the field versus in the herbarium

1 of eight females among the 500 most productive plant name authors of all time*

Dr. Taylor is considered one of the world's leading experts on Rubiaceae, also known as the coffee, quinine, madder, or bedstraw family. We asked her about her work as a Garden scientist.

Taxonomy: "I love jigsaw puzzles. Taxonomy is a lot like jigsaw puzzles, but no one knows what the right answer is. You just have to figure it out."

Next generation: "What concerns me is that the value of taxonomy will not be appreciated until you've run out of the people who know how to do it, and then you have to build up the capacity. In the meantime you may lose expertise, and it's really expensive and hard to get it back."

Visit www.mobot.org/plantscience to learn more about Dr. Taylor's work, how one of her plants saved her husband's life, and more.

**Mind the (gender) gap* (March 30, 2015); Kew Botanic Gardens; www.kew.org/discover/blog

what can you do?

Come Grow with Us!

The Missouri Botanical Garden, Sophia M. Sachs Butterfly House, and Shaw Nature Reserve are more than just beautiful destinations. They are living classrooms that connect people of all ages to the wonderful world of plants—from cooking, painting, and photography courses to green living, outdoor exploring, and, of course, gardening classes.

Registration for the spring/summer session is now open, and there is something for everyone. Now is the perfect time to learn a new skill, discover a new passion, or reconnect with the natural world in a whole new way.



To learn more, look for your course catalog in the mail or visit www.mobot.org/classes.





Gardeners can find a wide range of resources for all their needs—from plant doctors to seasonal tips.

The Center for Home Gardening Is Always Open

Your home garden is finally awakening after a long, cold winter. If you're looking for inspiration; want to know the best practices to start, maintain, or expand your garden; or need to solve a plant problem, the William T. Kemper Center for Home Gardening is your one stop for all your home gardening needs. Come by and visit the demonstration gardens, stop by the Plant Doctor desk, call the Horticulture Answer Service at (314) 577-5143, or check out www.mobot.org/gardeninghelp.

Daffodil Season Is Here!

What better way to welcome the season than by celebrating this springtime favorite?



How did thousands of daffodils come to be at Shaw Nature Reserve? Don't miss "Inside Look at Shaw Nature Reserve: Daffodil Hike" on March 30 at 10 a.m. www.mobot.org/classes

Join us April 9 at 9 a.m. for the third annual Daffodil Dash 5K trail run at Shaw Nature Reserve. Fun for everyone! www.shawnature.org

The Greater St. Louis Daffodil Society is hosting the 2016 World Daffodil Convention on April 6–10, including a tour of the Garden. www.stldaffodilclub.org

photos by Sheridan Hentrich, Sonya Lalla, Flannery Allison, Kat Niehaus, and Heather Marie Osborn

Order by
APRIL 20
to receive by
Mother's Day!

Give the Gift of the Garden

Want to show Mom how much she means to you? Have a teacher to appreciate at the end of the school year? Consider a gift membership! Give a year of admission to the Garden, the Butterfly House, and the Nature Reserve. Members also enjoy discounts on special events, classes, and shopping along with other great benefits.

Visit www.mobot.org/membership, call (314) 577-5118, or visit the Membership Services Desk to purchase a gift membership.

project pollinator
a community garden initiative



Create a Pollinator Haven in Your Backyard

Every third bite of food people eat is made possible by a pollinator. In fact, more than 75% of flowering plants, including the ones that feed us, rely on animal pollinators. However, pollinator populations have been declining at an alarming rate, and one of the factors contributing to that decline is habitat loss.

This spring, the Butterfly House and St. Louis County are launching Project Pollinator, a community garden initiative. The project aims to create demonstration gardens in county parks, libraries, and other public spaces, and to engage the community in learning more about restoring pollinator habitats to improve the health of native pollinators.

To get started, visit the Butterfly House on March 15 at 10 a.m. for the official project kickoff and take home sample plants to start your own pollinator-friendly garden. You can also learn more at www.butterflyhouse.org/projectpollinator.



photo by Ning He

Reduce Horticultural Waste

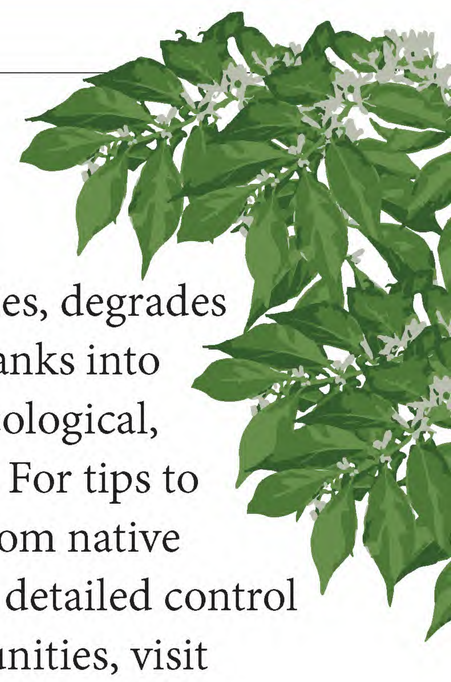
As you rediscover your garden this spring, don't forget to recycle those plastic garden pots, polystyrene cell packs, and trays. Help reduce the amount of horticultural waste in landfills. More at www.plasticpotrecycling.org.



April 2–3, 9 a.m. to 3 p.m.

Kick-start spring during this fun weekend festival by celebrating the great outdoors. In addition to the re-openings of the Doris I. Schnuck Children's Garden, Tower Grove House, and tram rides for the season, the recently renovated Brookings Exploration Center and the new PlantLab will debut (see page 10). Register for wildlife-habitat building sessions, check out exhibitors from across the region, take home a native tree,* and more!. For more info, visit www.mobot.org/meetmeoutdoors.

*while supplies last



Help Get Rid of Invasives

Bush honeysuckle (*Lonicera maackii*), an invasive plant species, degrades woodlands, fields, and stream banks into impenetrable thickets lacking ecological, economic, or recreational value. For tips to distinguish bush honeysuckle from native plants, landscaping alternatives, detailed control methods, and volunteer opportunities, visit www.mobot.org/invasives.

Want to participate in a honeysuckle pull before you tackle the one in your backyard? Join the Honeysuckle Pull at Shaw Nature Reserve on March 10, part of the week-long Honeysuckle Sweep for Healthy Habitat event, a project of the *BiodiverseCity St. Louis* network. For details, visit www.biodiversecitystl.org.



turning a new leaf

Doris I. Schnuck Children's Garden | Brookings Exploration Center | PlantLab

photos by Kat Niehaus

Spring brings a renewed sense of life to the natural world around us, and at the Garden, it is also a season of new beginnings. This year, we invite you to discover the new chapter of experiential learning at the Garden.

The Power of Nature Play

To watch children play in the Doris I. Schnuck Children's Garden: A Missouri Adventure is to witness a wonderful example of physical, mental, and emotional skills developing right before your eyes. Decades of research have shown that, far from being a distraction, play is essential for child development. Learning about collaboration, coordination, and teamwork at the Locks and Dams area and exploring physical agility and balance while walking through the cedar log climbers are among the many ways kids learn through play in the Children's Garden. "This is not your typical play space," says Sheila Voss, Vice President of Education. "Especially for urban families, the Children's Garden serves as a great bridge experience into nature, hopefully encouraging them to seek out more outdoor adventures in their own backyards and neighborhoods."









Visitors will experience a very welcoming space where they can explore create ponder investigate discover and connect with one another.

Made possible by a lead gift from the children of the Donald Schnuck family in honor of their mother, the Children's Garden opened in 2006. Ten years later, the family-friendly area has welcomed almost 1 million visitors and shows no signs of slowing. Over the years, new learning opportunities have been added, nature play areas have been built, and so many memories have been created.

Thanks to the ongoing and generous support of its Young Friends, the Garden is looking forward to adding more new features and educational experiences. This year, look for the addition of nature-made instruments and a natural weaving loom in the Nature Explore Classroom. If your child enjoys a good read, explore nature-inspired books in the storybook houses placed in little nooks throughout the Children's Garden. Through a new series of "show-me" guides, children will discover the importance of native plants, trees, flowers, and what they need to grow.

Participatory Learning Experiences

In addition to the importance of play in child development, the Garden is also proud to offer visitors an indoor, year-round space dedicated to intergenerational participatory learning. The newly renovated Brookings Exploration Center will open this spring after months of construction and upgrades. In this 4,300-square-foot space, visitors of all ages can learn about plants, the places they grow, how people rely on them, and the importance of protecting them. "Visitors will experience a very welcoming space where they can explore, create, ponder, investigate, discover, and connect with one another," says Interpretation Manager Jennifer Wolff. "This much needed renovation provides new, state-of-the-art interactive features that will engage visitors in the world of plants. Through both high-touch and high-tech tools, the new Center will be equipped to offer visitors unique opportunities to get up close and personal in exploring the marvels of Mother Nature."





The Garden Connection

Thanks to a lead gift from Edward Jones, the Brookings Exploration Center will now include a brand-new vestibule area and the PlantLab. The vestibule features, among other things, a family restroom and a Calming Corner for families with children needing quiet time and for nursing mothers. "Support from Edward Jones has enabled us to significantly up our game, if you will, when it comes to creating meaningful, family learning experiences centered on plants and the natural world," says Voss.

The PlantLab was designed as a creative hub for hands-on plant science, investigative learning, critical thinking, and discovery. The 1,100-square-foot, greenhouse-like classroom will be open as a year-round experiential learning space for people of all ages, backgrounds, and abilities. Visitors, including school groups, scout troops, and adult learners, can explore this space and get a closer look at the Garden's plant science work, from propagating and seed banking to understanding taxonomy and extracting DNA. "The PlantLab is really about science for the people," says Voss. "It's about giving access and opportunity to citizens of all ages to experience real-world science, including behind-the-scenes science at the Garden. It's about cultivating curiosity about our extraordinary and still-being-discovered world of plants and nature."

Thank You!

In addition to Edward Jones, the Garden is also grateful to these additional supporters:

Mr. and Mrs. William A. Gilbert
Dr. Ann J. Johanson
Pat Jones
Mr. and Mrs. Alois J. Koller, Jr.
John and Anita O'Connell
Nora Stern and the Driver and Gleason families
Peters Family Charitable Trust
Members' Board and Alumni of the Missouri Botanical Garden
Young Friends Council and Alumni of the Missouri Botanical Garden

join the celebration

As part of the "Meet Me (Outdoors) in St. Louis" weekend celebration (see page 9), the Garden invites you to celebrate the Children's Garden's 10th anniversary and the opening of the Brookings Exploration Center and the PlantLab.

When: April 2–3

Where: Children's Garden entrance

More at www.mobot.org/meetmeoutdoors.



announcing EXCITING CHANGES

to the Garden's membership program!

As a member, you are vital to the success of the Missouri Botanical Garden. You visit the Garden, the Sophia M. Sachs Butterfly House, and Shaw Nature Reserve; attend events; take classes; bring friends and family; and most important, share and support the Garden's mission.

Members are critical to securing the Garden's future. You help maintain the three venues as must-visit destinations and ensure quality programing is shared in the community and across the globe.

You also tell us what you value and how you use your membership benefits. At the Garden, we are constantly working to optimize each member's experience and celebrate the role you play in our successes. Effective March 1, 2016, the Garden is pleased to offer the following enhancements based on your requests:

» Military appreciation all year long: 20% off memberships with a military ID
» New Individual membership for one adult
» More opportunities to enjoy the Doris I. Schnuck Children's Garden
» Membership level names that more accurately reflect your benefits
» Admission to Garden Glow

Here are a few important things to know about the new membership program:

Q: When do these changes happen?
A: March 1, 2016

Q: What do I need to do?
A: Nothing! Your membership will automatically adjust on March 1, 2016.

Q: Will my cards still be valid if the membership level name changes? (i.e., from Family to Festival)
A: Absolutely! Your current cards are valid through their listed expiration date.

Q: Can I still pay quarterly?
A: Yes! Quarterly, automatic payments are still available at the Festival level and above.

Q: Can I still match my gift?
A: Yes, please! Matching gifts are a great way to increase the impact of your membership and your benefits. Connect with your company to learn about their matching-gift policies.

Q: How do I receive my military discount?
A: Visit the Membership Services Desk at the Garden, Butterfly House, or Shaw Nature Reserve with a military ID to begin your military discount.

photo by Paul Straatmann

new membership levels

INDIVIDUAL | $50

new

- General admission* for 1 adult and all children 12 and younger
- 3 Bonus Bloom passes**
- 1 membership card per membership
- All other benefits same as **Garden/Garden Senior** level

GARDEN | $75 AND GARDEN SENIOR | $70

same level names as 2015
Garden Senior membership available for members age 65 and older

- General admission* for 2 adults and all children 12 and younger
- FREE admission to the Doris I. Schnuck Children's Garden on Tuesdays, April–October
- Just for Members:
  - » Member Tuesday Nights, Memorial Day– Labor Day
  - » preview evenings for annual floral shows
  - » special programs and events throughout the year
  - » *Bulletin* magazine, produced quarterly
  - » annual thank-you gift
- 6 Bonus Bloom passes**
- Discounts on classes
- Reduced admission to special festivals, including Chinese Culture Days, Japanese Festival, Best of Missouri Market®, and Garden Glow
- 10% off purchases in the Garden Gate Shop, Butterfly House Gift Shop, and Little Shop Around the Corner
- 2 membership cards per membership
- Reciprocal benefits at over 300 botanical gardens and arboreta across North America

FRIENDS AND FAMILY | $115

formerly Garden Plus

All benefits of the Garden level, plus:

- General admission* for 4 adults and all children 12 and younger
- **New!** Free admission to the Children's Garden every day, April–October
- **New!** Complimentary tram rides for up to 4 adults and all children 12 and younger per visit, based on availability

FESTIVAL | $195

formerly Family

All benefits of the Friends and Family level, plus:

- General admission* for 6 adults and all children 12 and younger
- Free admission to Chinese Culture Days, Japanese Festival, and Best of Missouri Market®, for 6 adults and all children in your party 12 and younger
- **New!** 6 tickets to Garden Glow
- 20% discount on purchases in our shops
- Complimentary tram rides for up to 6 adults and all children 12 and younger per visit, based on availability

***YOU RECEIVE GENERAL ADMISSION** — to the —
butterfly house | **botanical garden** | **shaw nature reserve**
for a specific number of adults and children depending on your membership level

****BONUS BLOOM PASSES** — for free —
tram tours | **children's garden admission**
Number of passes received vary depending on your membership level

CONTRIBUTOR | $350

formerly Sponsoring

All benefits of the Festival level, plus:

- General admission* for 8 adults and all children 12 and younger
- Invitations to floral show premieres
- **New!** 8 tickets to Garden Glow
- **New!** *Cuttings*, Garden President Dr. Peter Wyse Jackson's quarterly newsletter
- Complimentary tram rides for up to 8 adults and all children 12 and younger per visit, based on availability

PRESIDENT'S SOCIETY | $700–$1,499

President's Associate | President's Circle

All benefits of the Contributor level, plus:

- Invitations to behind-the-scenes opportunities and special events, including President's Society Reception
- **New!** VIP tickets to Garden Glow by request

HENRY SHAW SOCIETY | $1,500–$9,999

Henry Shaw Associate | Garden Fellow | Garden Ambassador

All benefits of the Contributor level, plus:

- Invitations to behind-the-scenes opportunities and special events, including Henry Shaw Dinner
- **New!** VIP tickets to Garden Glow by request

PETER H. RAVEN SOCIETY | $10,000+

Sponsor | Benefactor | Patron

All benefits of the Contributor level, plus:

- Invitations to behind-the-scenes opportunities and special events, including Raven Society Dinner
- **New!** VIP tickets to Garden Glow by request

note: membership admission benefits do not apply to groups of any kind

MORE INFORMATION

GO TO: www.mobot.org/membership
EMAIL: membership@mobot.org
CALL: (314) 577-5118
VISIT: Membership Services Desk



The existing greenhouses have reached their capacity, with little room left to grow plants to add to the living collections and support conservation programs.

opportunity

SPACE

A generous donation offers much-needed acres for nursery operations

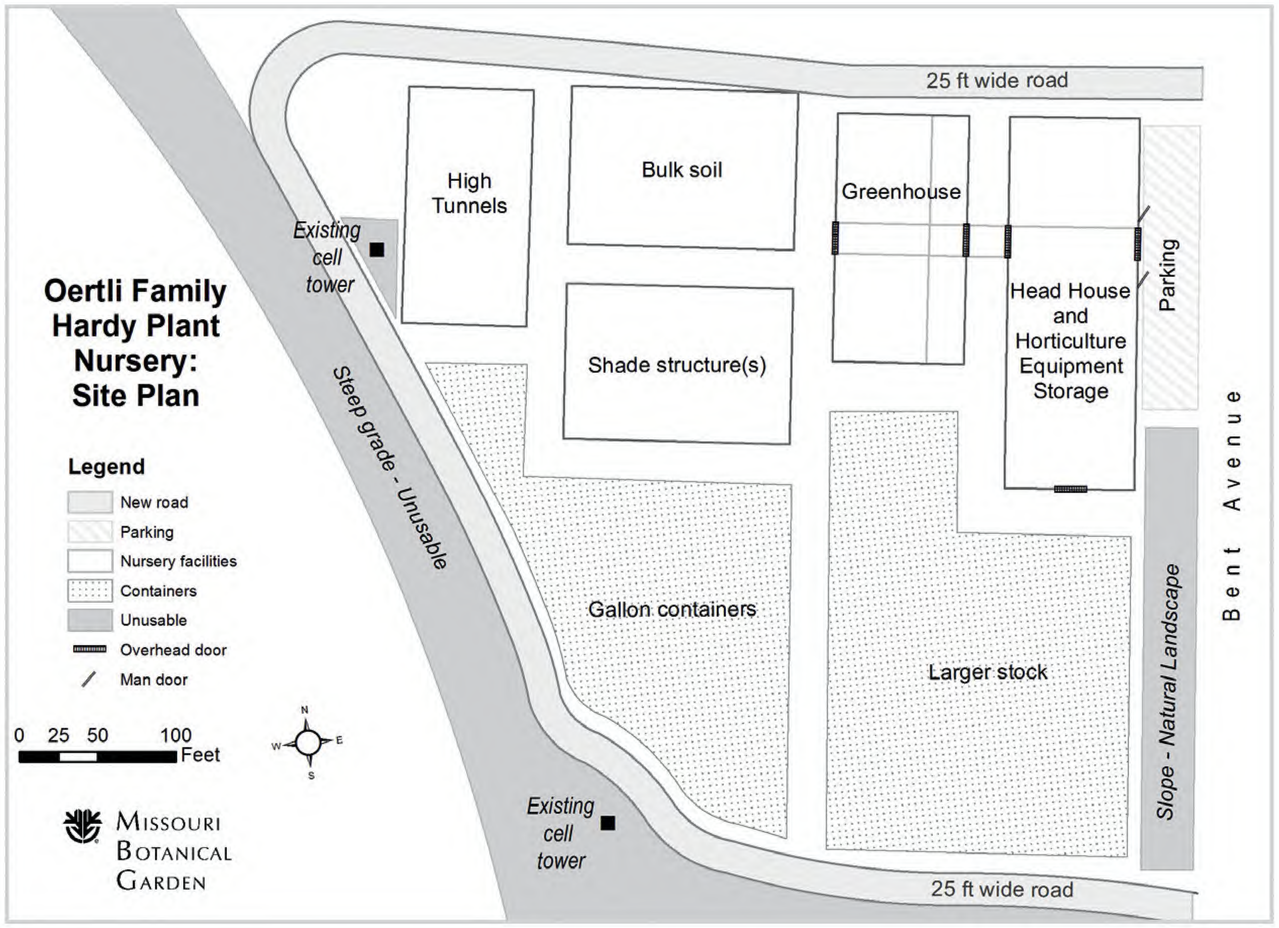
For decades, the Missouri Botanical Garden has relied on about one acre of nursery space to house its permanent collections, grow thousands of plants for floral display, and conduct research and propagation work to support its conservation programs. Thanks to a generous donation of 6.38 acres of land by the Oertli family, the Garden will begin to expand its nursery operations this spring at the new Oertli Family Hardy Plant Nursery.

A Win-Win Opportunity

The Oertli family, which has led Guarantee Electrical Company since the 1940s, recently completed a 10-year ownership transfer to employees of the electrical contractor but continued to own the 16-acre property in the 3400 block of Morgan Ford which housed Guarantee and other businesses. "The family learned of the Garden's need as we considered how to apportion the property," says Rick Oertli, who remains chairman and CEO of Guarantee. "In weighing various options with the real estate, it was decided to subdivide and sell the northern portion to Guarantee and gift the balance to the Garden to nurture its mission. We hope this approach provides a healthy conduit to the future for both organizations."

"We believe this is a true win for everyone involved, including the surrounding Tower Grove South neighborhood," adds Roger Oertli, who with his cousin, Rick, is a co-managing member of the family LLC that owned the property. "The Garden will be a good neighbor to area residents and to Guarantee."

photos by Monique Mullen and Cindy Lancaster



The 6.8-acre tract donated by the Oertli family is located several blocks south of the Garden.

Phase one of the new Garden project will demolish existing buildings on the property, then clear and grade the land to accommodate a 12,500-sq-ft, Venlo-style greenhouse. Plans are to have a fully functioning nursery by spring 2017. While this new facility will not be open to the public, it will host occasional tours.

Supporting Conservation and Displays

The Garden currently buys much of its plant material for the annual displays. The new Nursery ultimately will allow horticulturists to produce at least 95% of the Garden's plant material. Most of the plants grown at the new facility will be hardy herbaceous perennials and woodies with a focus on wild-collected specimens. "This project represents an important step in our mission to conserve some of the world's rarest and most endangered plant species while supporting the Garden's displays and permanent collections in a more sustainable way," says Andrew Wyatt, Vice President of Horticulture and Living Collections.

Increasing the number of wild-collected plants in the permanent living collections is no small task, but is crucial to the Garden's conservation goals going forward. "By producing, documenting, and adding known wild-origin taxa to our living collections, we can conserve important genetics and support wild populations through ex-situ conservation," explains Derek Lyle, Nursery Supervisor.

Growing wild-collected plants on-site and adding them to the Garden's living collections is a tool for both conservation and education purposes. The new facility will provide an incomparable learning space for Garden horticulturists. "Horticulture is more than a love of gardening," Wyatt says. "It's a science that includes understanding propagation and cultivation. This new nursery greatly strengthens the Garden's capacity for this important work."



The Garden produces about 200,000 individual plants every year for annual displays, most of which are commercially sourced. The new Nursery will eventually allow the Garden to produce at least 95% of its plant material.

Thank You!

The Garden is also grateful to these additional supporters of the Oertli Family Hardy Plant Nursery:

Lelia and David Farr
William T. Kemper Foundation–Commerce Bank Trustee
June and Fred Kummer

Support for the Garden's world-class horticulture program is still needed. Learn how you can help at www.mobot.org/fortheworld.

Learn More!

You can follow the Nursery's progress by visiting www.mobot.org/hardyplantnursery as construction starts and horticulturists begin to grow plants for the Garden.

just for members













NEW! Member Nights

Mar–Dec | 5–7 p.m. | Garden Gate Shop

Starting this March, the Garden Gate Shop will stay open until 7 p.m. once every other month to offer Garden members product demonstrations, educational opportunities, and more while offering a 20% discount during the extended hours.

See page 21.

Member Day: March Morpho Mania

March 7 | 10 a.m.–noon | Butterfly House

Visit thousands of dazzling Blue Morpho butterflies. Join us for members-only access, kid-friendly crafts, "ask the expert" stations, and other activities. Reservations required.

Eggstravaganza

March 19 | Hunt times: 10 a.m., 10:30 a.m., 11 a.m., 11:30 a.m., noon

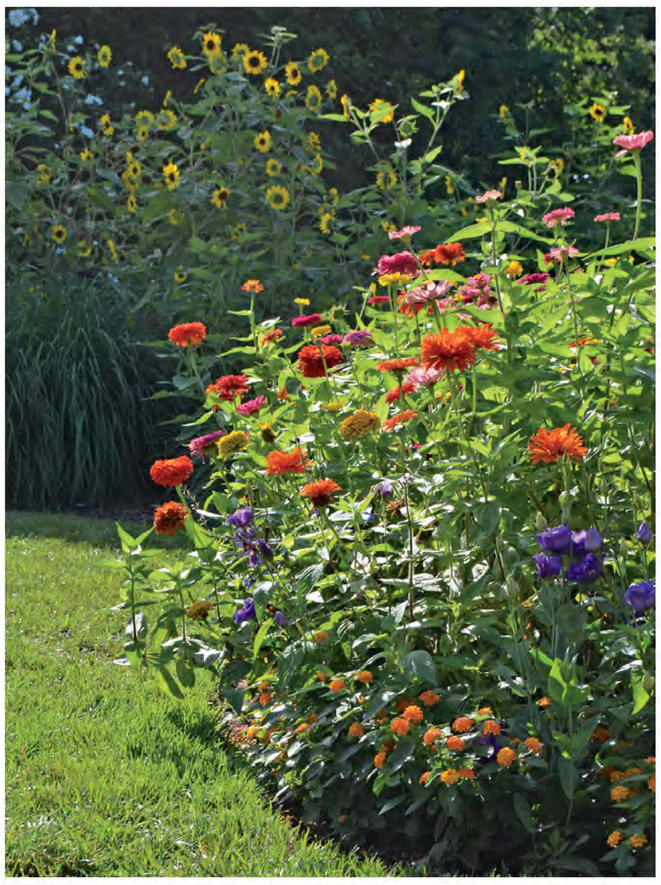
Enjoy this springtime tradition at the Garden! See live rabbits from the House Rabbit Society and meet Bunny. Bring your basket to collect all the goodies. Each egg hunt is divided by age group. $5 for member children (3 and older). Reservations required.

Member Day: Designing Your Veggie Garden

April 5 | 11 a.m.–noon | Shoenberg Theater

Enhance your garden with edibles. Steffie Littlefield of Edg-Clif Farms and Garden Heights Nursery shares tips to incorporate vegetables into healthy, unique, and beautiful gardens. Reservations required.

photos by Heather Marie Osborn, Mary Lou Olson, Kerri Carter, and Billie Liao











photos by Allison Jones, Heather Marie Osborn, Tom Incrocci, Dan Yaroschevsky, and Monique Mullen

i

Information and registration at (314) 577-5118 or www.mobot.org/memberevents unless otherwise noted.

Member Day: Yardscaping

April 19 | 6–7 p.m. | Shoenberg Theater

Jerry Pence, Horticulture Program Coordinator at St. Louis Community College, shows how to plan a diverse landscape that fits the needs of families, birds, and butterflies, creating unique spaces in the yard. Reservations required.

Herb Days Member-Only Events

Shopping Hours
April 28 | 5–8 p.m.

Members enjoy first pick during the St. Louis Herb Society's annual Herb Days plant sale.

Growing Peppers
April 29 | 11 a.m.–noon

Learn all about peppers from Anne Cori of the St. Louis Herb Society. Reservations required.

Shaw Wildflower Market Member Preview

May 6 | 4–7:30 p.m. | Shaw Nature Reserve

Members get first pick of hundreds of varieties of Missouri native wildflowers, trees, and shrubs. Plus, enjoy live music and vendors of local wine, breads, meats, sweets, baskets, books, and more.

Member Day: Right Size Your Flower Garden

May 17 | 11 a.m.–noon | Shoenberg Theater

Master Gardener Terry Milne shares tips and plans to work smarter in the garden. Learn strategies to tackle maintenance chores while incorporating changing wants and needs. Reservations required.

special events

March Morpho Mania

March 1–31 (closed Mondays) | 10 a.m.–4 p.m. | Butterfly House

All month long visitors will be surrounded by thousands of big, bright blue morpho butterflies inside the Tropical Conservatory. Don't miss this dramatic sight! Included with admission.





Daffodil Dash

April 9 | 9 a.m. | Shaw Nature Reserve

Join the annual 5K trail run benefitting the Nature Reserve. $20 members and virtual runners; $24 nonmembers. Tickets required: www.shawnature.org.

Tulip Trot

April 26 | 7–9 a.m.

Take a spring morning fun run through the Garden. Proceeds benefit the Children's Garden. Runners receive a commemorative race shirt. $30 members and virtual runners; $40 nonmembers. Tickets required: www.mobot.org/tuliptrot.



Herb Days

April 29–30 | 9 a.m.–5 p.m. | Orthwein Floral Display Hall

Presented by the St. Louis Herb Society

Shop more than 100 varieties of herbs including the herb of the year: pepper. Native herbs to attract butterflies, hummingbirds, and native pollinators will also be available. Included with admission; free for members. Members also get first pick on April 28 (see page 19).

Grapes in the Garden

May 6 | 5:30–8:30 p.m.

Presented by Schnuck Markets, Inc.

Join us for a special evening at the Garden and sample fine wines and gourmet foods. Attendees must be at least 21 years of age. $45 per adult. $35 for members. $15 designated driver. Tickets required: www.mobot.org/grapes.



Shaw Wildflower Market

May 7 | 9 a.m.–4 p.m. | Shaw Nature Reserve

Shop the largest selection of native wildflowers in the St. Louis area featuring hundreds of varieties of Missouri native annual and perennial wildflowers, ferns, trees, and shrubs to attract wildlife. $5 per person; free for members and Nature Reserve passholders. Members also get first pick on May 6 (see page 19).

Corporate Partners Days

Free admission for corporate partner employees to the Garden for up to two adults and all children 12 and younger. Enjoy 20% off new, renewing, and gift memberships and 10% off purchases in the Garden Gate Shop.

March 6 | 9 a.m.–5 p.m.
Includes Orchid Show admission

May 15 | 9 a.m.–5 p.m.
Includes Children's Garden admission

More at www.mobot.org/corporate.



Chinese Culture Days

May 21–22

Join us for this annual celebration featuring a Grand Parade with 70-foot-long dancing dragon, authentic regional cuisine, t'ai chi, acrobatics, and tours in the Grigg Nanjing Friendship Garden. $5 members; free for Festival level and above (see page 15); $12 nonmembers; $5 children (ages 3–12); free for member children. Join or renew at the event and get in free!

www.mobot.org/chineseculturedays

photos by JJ Mueller, Lisa DeLorenzo Hager, Amanda Attarian, and Josh Nezam

shop & dine

From gardening tools and unique toys to vintage items and local products, the Garden shops have just what you're looking for.
Look for these icons to know where each event or sale is taking place.

Garden Gate Shop
4344 Shaw Blvd.
St. Louis, MO 63110
Monday–Sunday
9 a.m. to 5:30 p.m.
(314) 577-5137

Butterfly House Gift Shop
15193 Olive Blvd.
Chesterfield, MO 63017
Tuesday–Sunday
10 a.m. to 4 p.m.
(636) 530-0076 ext. 15

Little Shop Around the Corner
4474 Castleman Ave.
St. Louis, MO 63110
Tuesday–Saturday
10 a.m. to 4 p.m.
(314) 577-0891



DON'T MISS!

Cloud Forests: Orchids in the Wild
Now through March 27, visit Monsanto Hall in the Ridgway Visitor Center and explore Gabby Salazar's photographs of cloud forests and orchids, including pictures from Mauritius and Madagascar, where she has worked with Garden staff.

photos by Melissa Tucker and courtesy of Gabby Salazar

First Fridays
First Friday of the month |
Discover something new—from book signings to food samplings to trunk shows. More at www.mobot.org/shop.

Member Days Sale
March 4–6 |
All Garden members receive 20% off purchases in the shops.

Summer Bulb Sale
March 15–May 31 |
Get ready for summer with a wide selection of bulbs for your garden.

Staff and Volunteer Sale
March 16–19 |
As a thank you for making the Garden a world-class institution, all Garden staff and volunteers receive an extra 10% off their purchases.

Café Flora
March 19–October 30 | 10 a.m.–2 p.m. | NEW! Open Saturdays
Enjoy a delicious brunch at the iconic Spink Pavilion with a view like no other: the reflecting lily pools and the Climatron®. Call (314) 577-0200 for more information.

Member Night: Orchid Basics
March 24 | 5–7 p.m. |
Orchid moss or orchid bark? What is the myth of the "ice cube" orchid? Learn basic orchid care and tips. No registration required.

Member Days Sale
April 1–3 |
All Garden members receive 20% off purchases in the shops.

Spring Fling Sale
Weekends in April |
Celebrate the important insects that help to make our gardens grow! All Garden members receive 20% off purchases in the Butterfly House Gift Shop (excludes plant sale). See shop for details.

Member Days Sale
May 6–8 |
All Garden members receive 20% off purchases in the shops.

Staff and Volunteer Sale
May 18–21 |
As a thank you for making the Garden a world-class institution, all Garden staff and volunteers receive an extra 10% off their purchases.

Member Night: Kokedama Demonstration
May 24 | 5–7 p.m. |
Kokedama is a Japanese variant of bonsai. It means "moss ball," and it consists of a soil-wrapped root bundle on which an ornamental plant grows. No registration required.

» staff pick



Lifepack Eco-Friendly Tableware
Winner of one of 20 Arch Grants in St. Louis, Lifepack seeks to replace plastic and Styrofoam plates with ones that can be planted after being used. Each box contains 24 germinating plates (8 small, 8 medium, and 8 large), 12 wood forks, and 12 wood knives. Get yours at the Garden Gate Shop.

commemorative gifts

October–December 2015.
A commemorative gift is a wonderful way to honor family and friends. Gifts of $50 or more are listed in the *Bulletin*. For more information about giving opportunities at the Missouri Botanical Garden, please call (314) 577-5118 or make a commemorative gift at www.mobot.org/tributes.

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October–December 2015. For more information, call (314) 577-5118 or visit www.mobot.org/donate.

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BUTTERFLY HOUSE

October–December 2015. Call (314) 577-5118 or visit www.butterflyhouse.org/donate to learn more.

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green today
greener tomorrow

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CHINESE CULTURE DAYS

May 21–22
www.mobot.org/chineseculturedays

photo by Mary Lou Olson

Grapes in the Garden

www.mobot.org/grapes

Join friends for a special evening at the Garden sampling fine wines and gourmet foods from Schnucks. Tickets include admission to the Garden, a souvenir wine glass, wine sampling, hors d'oeuvres, and musical entertainment. All attendees must be at least 21 years of age.





May 6

5:30–8:30 p.m.





$45 adult

$35 members

$15 designated driver



Presented by Schnucks

Missouri Botanical Garden

calendar

www.mobot.org/events

march | april | may



Chinese Culture Days
May 21–22



Eggstravaganza

March 19 | 10 a.m.–noon

$5 member children (ages 3 and older)

Egg hunts are offered every 30 minutes from 10 a.m. to noon. Hunt areas are divided by age group.

Enjoy this springtime tradition at the Garden! See live rabbits from the House Rabbit Society and take photos with our very own Bunny. Bring your basket to collect all the goodies. Reservations required.

www.mobot.org/memberevents

March Morpho Mania

at the Butterfly House

March 1–31



www.butterflyhouse.org



Shaw Wildflower Market

at Shaw Nature Reserve

May 7 | 9 a.m.–4 p.m.

$5 per person | Free for members

Member-Only Preview
May 6 | 4–7:30 p.m. | Free

Shop the largest selection of native wildflowers in the St. Louis area featuring hundreds of varieties of Missouri native annual and perennial wildflowers, ferns, trees, and shrubs to attract wildlife.

www.shawnature.org

march 2016

average temperature: low 36° | high 55°
average precipitation: 3.7 in.

What's in bloom?


Birthwort


Hellebore


Bloodroot

2/6–3/27	**Orchid Show "Where Wild Things Grow"** | 9 a.m.–5 p.m. | through March 27 | Free for members | RVC
3/1–3/31	**March Morpho Mania** | through March 31 (closed Mondays) | 10 a.m.–4 p.m. | BH
3/4–3/6	**Member 20% Sale** at the shops | GGS, BHGS, LS
3/6	**Corporate Partners Day** | 9 a.m.–5 p.m.
3/7	**Member Day: March Morpho Mania** 10 a.m.–noon | ☎ BH
3/16–3/19	**Staff and Volunteer Sale** at the shops | GGS, BHGS, LS
3/16	Orchid Presentation and Reception with Dr. Tariq Stévart | 6–8 p.m. | ST
3/19	**Member Event: Eggstravaganza** | 10 a.m.–1 p.m. ☎ $
3/19	**Great Green Adventures: Getting the Garden Ready** | 10:30–11:30 a.m. or 1:30–2:30 p.m. | Free for members | RVC
3/19–10/30	**Café Flora opens** | Saturday and Sunday brunch | 10 a.m.–2 p.m. | through October 30 | $ SP
3/24	**Member Night: Orchid Basics** | 5–7 p.m. | GGS
3/27	**Easter Brunch** | 10:30 a.m., noon, and 1:30 p.m. ☎ $



april 2016

average temperature: low 47° | high 66°
average precipitation: 3.82 in.

What's in bloom?


Arisaema


Mountain bluet


Dwarf fothergilla

4/1–4/3	**Member 20% Sale** at the shops | GGS, BHGS, LS
4/2–4/3	**Meet Me (Outdoors) in St. Louis** | 9 a.m. to 4 p.m.
4/2–4/3	**Spring Fling** | 10 a.m.–3 p.m. | BH
4/5	**Member Day: Designing Your Veggie Garden** | 11 a.m.–noon | ☎ ST
4/9	**Daffodil Dash** | 9 a.m. | ☎ $ SNR
4/9–4/10	**Spring Fling** | 10 a.m.–3 p.m. | BH
4/16	**Great Green Adventures: Getting to Know Trees** | 10:30–11:30 a.m. or 1:30–2:30 p.m. | Free for members | CHD
4/16–4/17	**Spring Fling** | 10 a.m.–3 p.m. | BH
4/19	**Member Day: Yardscaping** | 6–7 p.m. | ☎ ST
4/22	**2016 John Dwyer Lecture in Biology: "Journey of an Africanist"** by Dr. James Miller | 4 p.m. | ST
4/26	**Tulip Trot** | 7–9 a.m. | ☎ $
4/23–4/24	**Spring Fling** | 10 a.m.–3 p.m. | BH
4/23	**Bookworm Breakfast with the Very Hungry Caterpillar** | 9–10 a.m. | ☎ $ BH
4/24	**Bookworm Breakfast with the Very Hungry Caterpillar** | 9–10 a.m. | ☎ $ BH
4/28	**Member-Only Shopping Hours: Herb Days** | 5–8 p.m. | RVC
4/29–4/30	**Herb Days** | *presented by the St. Louis Herb Society* | 9 a.m.–5 p.m. | RVC
4/29	**Member Day: Growing Peppers** | 11 a.m.–noon | ☎ ST
4/30	**Spring Fling** | 10 a.m.–3 p.m. | BH

may 2016

average temperature: low 57° | high 77°
average precipitation: 3.92 in.

What's in bloom?


Mountain laurel


Love-in-a-mist


Poppy

5/1	**Fancy Tea with Mommy and Me** | 10–11:30 a.m. or 2–3:30 p.m. | ☎ $ BH
5/6	**Grapes in the Garden** | *presented by Schnuck Markets, Inc.* | 5:30–8:30 p.m. | ☎ $ RVC
5/6–5/8	**Member 20% Sale** at the shops | GGS, BHGS, LS
5/6	**Shaw Wildflower Market Member Preview** | 4–7:30 p.m. | SNR
5/7	**Shaw Wildflower Market** | 9 a.m.–4 p.m. | Free for members | SNR
5/15	**Corporate Partners Day** | 9 a.m.–5 p.m.
5/17	**Member Day: Right Size Your Flower Garden** | 11 a.m.–noon | ST
5/18–5/21	**Staff and Volunteer Sale** at the shops | GGS, BHGS, LS
5/21	**Great Green Adventures: Around the Pond** | 10:30–11:30 a.m. or 1:30–2:30 p.m. | Free for members | CHD
5/21–5/22	**Chinese Culture Days** | 10 a.m.–5 p.m. | $
5/24	**Member Night: Kokedama Demonstration** | 5–7 p.m. | GGS



your garden



When can I plant my vegetable garden?

A frequent mistake gardeners make is planting vegetables too early. Do not rush to plant seeds outdoors or to set out plants. Most seeds will not germinate well until the soil warms up to 60°F. If you sow seeds in cold soil, germination will be delayed until the soil warms up. Also if the soil is cold and wet, the seeds may rot before the soil warms up enough for germination.

In the St. Louis area, the following vegetables may be planted outdoors after March 15: lettuce, spinach, turnips, radishes, peas, kohlrabi, onion sets, and potatoes. If the seed packet recommends planting when the ground can be worked, it is usually about March 15 or later. Plants of lettuce, cabbage, broccoli, and cauliflower as well as seeds of chard, beets, and carrots may be set out after March 25. After April 15 plant corn and green beans. Tomatoes may be set out after May 1, depending on the weather. After May 1, plant seeds of lima beans, okra, cucumber, and squash. Plant sweet potatoes, eggplant, and peppers around May 10.

If the weather should turn unusually cool, it may be necessary to provide protection by covering the plants at night with lightweight floating row covers, or alternatively, milk bottles or 2-liter soda bottles with the bottoms removed.

More advice and tips at www.mobot.org/gardeninghelp.

Just For Members!
Member Day: Designing Your Veggie Garden
April 5 | 11 a.m.–noon | Shoenberg Theater
Register at www.mobot.org/memberevents.

Plant Societies' Shows and Sales

Get the latest information about your favorite plant society's show and sale by visiting www.mobot.org/plantsocieties.

Key *(All events take place at the Garden unless otherwise noted.)*

BH	Butterfly House	KC	Kemper Center for Home Gardening		Sassafras
BHGS	Butterfly House Gift Shop	LS	Little Shop Around The Corner		Members-only event
CA	Cohen Amphitheater	MC	Monsanto Research Center		20% Member discount at the shops
CBEC	Commerce Bank Center for Science Education	MH	Monsanto Hall (in RVC)	☎	Reservations required
CHD	Children's Garden	RVC	Ridgway Visitor Center	$	Fee required
CL	Climatron lawn	SNR	Shaw Nature Reserve		
GGS	Garden Gate Shop	SP	Spink Pavilion		
JE	Jordan Education Wing (in RVC)	ST	Shoenberg Theater (in RVC)		

photos by (front) Sonya Lalla, Josh Nezam, Dan Brown, Lisa DeLorenzo Hager, and Charles Schmidt (this page) Lisa Francis, Maddy Gordon, Tom Incrocci, and Kat Niehaus

bulletin

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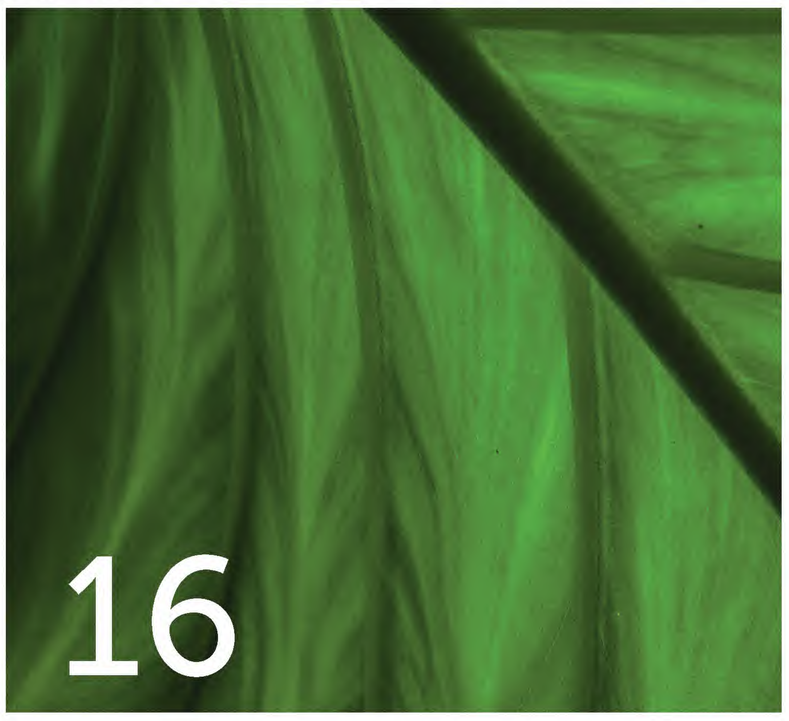
MISSOURI BOTANICAL GARDEN



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Thank you! Your membership provides critical support for our international and local plant science and conservation work, and Garden memberships contribute 20% of our annual operating funds.
To learn more about the benefits of your membership, visit www.mobot.org/membership, email membership@mobot.org, or call (314) 577-5118.

hours and admission
For hours and admission prices at our three locations, visit www.mobot.org, www.butterflyhouse.org, and www.shawnature.org.

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on the cover
The rounded clusters on the mosaic plant (*Ludwigia sedoides*) beautifully symbolize how everything–including plants and people–is connected. Photo by Kat Niehaus.

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To discover and share knowledge about plants and their environment in order to preserve and enrich life.

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photos by Chris Birkinshaw and Monique Mullen

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photo by Koraley Northen

from the president



Summer is a wonderful time of year to spend time outdoors. If you're looking for new and exciting ways to enjoy nature, we hope you join us at the Missouri Botanical Garden, Sophia M. Sachs Butterfly House, and Shaw Nature Reserve for some all-time favorites and some new offerings. For example, in addition to enjoying Member Tuesday Nights and the free outdoor Whitaker Music Festival on Wednesday evenings, you can now experience the beauty of the Garden on Thursday evenings during our new Sensational Summer Nights (see page 8). Or you can learn more about what's going on around the Garden grounds—from construction to the beautiful summer displays (see page 5)—with our new My MBG app (see page 4).

I'd also like to invite you to discover Madagascar at the Garden with us this summer. It is a country with some of the world's most fascinating, yet threatened flora. Madagascar has been a research and conservation priority for the Garden for decades. Read about our program's history in this magnificent, biodiverse place (see page 14) or learn more during "Discover Madagascar" (see page 9). Speaking of Madagascar, our community-based conservation approach there is just one example of how the Garden engages local communities, both at home and abroad, to identify and protect plants, plant-based livelihoods, and human well-being (see page 10).

This summer, we are also honored to host an international conference on "Plant Conservation and the Sustainable Development Goals" alongside the Global Partnership for Plant Conservation. The conference offers those attending a unique opportunity to join world-leading conservationists, partner organizations, and development agencies in learning more about how plants play an essential role in addressing some of the world's biggest challenges—from biodiversity loss to poverty to climate change. Promoting sustainability is one of the Garden's goals through its advocacy on the global environmental stage and a commitment we make through our everyday choices as an organization (see page 16). We hope you can join us this summer at the Garden to discover how you can live a "greener" life and be a part of the movement for plants that is shaping our planet's future.



Dr. Peter Wyse Jackson, *President*

what's new?



Ceremonial Tree Planting

On March 28, Garden President Dr. Peter Wyse Jackson (center) held a private tree planting ceremony to celebrate Irish heritage and commemorate the 1916 Centenary in Ireland, where he was born. Guests included St. Louis City Mayor Francis G. Slay (right) and Joe McGlynn, Honorary Consul General of Ireland in St. Louis (left). The three planted an Irish oak (*Quercus petraea*), the Irish national tree.

Board of Trustees

The Board elected a new member in March:



Ward M. Klein
Executive Chairman of the Board, Edgewell Personal Care



Teens in the MANTIS program will be interacting with visitors as they learn about the natural world and build peer relationships.

Building Environmental Stewardship

The Butterfly House is launching a new program as part of the Garden's Teen Network. MANTIS is a volunteer program designed for teens interested in hands-on experience in nature conservation while gaining plant and animal knowledge through environmental stewardship. "We decided to develop MANTIS in order to nurture teens who have an interest in nature but may not have been exposed to environmental careers," says Vickie Campbell, Director of the Butterfly House. "As part of an informal education facility, our Butterfly House staff enjoy showing off their talents and expertise in this unique field." To learn more and to apply, teens ages 14–18 can visit www.butterflyhouse.org/mantis. Applications for the fall session are due July 10.



Garden Launches Mobile App

Visitors can now enjoy an enhanced experience when they visit the Garden after they download the new My MBG app. The app includes a digital visitor's guide as well as a fun, interactive tour of some of the most notable plants in the Garden's living collection on display this summer. Use the augmented reality feature to unlock additional information and hidden bonuses or discounts; share a photo to score points; discover new plants you didn't know about; and much more. "This is going to be such a wonderful experience for our visitors—and it's been a long time coming," says Liz Fathman, Director of Print and Digital Media. "My MBG will allow us to customize tours for our visitors based on everything from seasonal floral display shows to events to plants of conservation concern and more. We look forward to rolling out our first 'campaign' this summer, and we can't wait to start creating more." The app is available for free this summer in the iTunes store on your iPhone (Android version coming soon).



Roadwork around the Garden

The Missouri Department of Transportation (MoDOT) will begin to replace the Grand bridge over I-44, near the Garden. It was built in 1969, and while MoDOT states that the bridge is safe, it needs to be replaced before the next winter. Starting this summer, the first of three stages will begin. At least one lane will remain open in each direction on Grand. The work is expected to be completed this winter. For more information about the project and for alternate routes to the Garden, please visit www.mobot.org/directions.

photos by Kevin Kersting and Butterfly House staff



Begonias are grown in St. Louis as an annual, but they are considered perennials in the tropical regions of the world.

Showcasing Geographic Diversity through Plants

This summer, visitors can take a trip around the world as they enjoy the display beds in the northern end of the Garden. From begonias to giant elephant's ears, many garden plants considered annuals in the Midwest are actually perennials in their native regions. That, says Senior Horticulturist Julie Hess, was the inspiration behind this year's summer display beds. "I wanted to show people that what we consider annuals are perennial shrubs and trees in their native habitat," she says. The beds in Spoehrer Plaza, Swift Family Garden, Bakewell Court Garden, along the Lopata Azalea/Rhododendron Garden, and in the Central Axis will showcase a variety of plants from continental Africa; Madagascar; Southeast Asia and the Pacific Rim Islands; Australia and New Zealand; North America; Mexico; and South America.

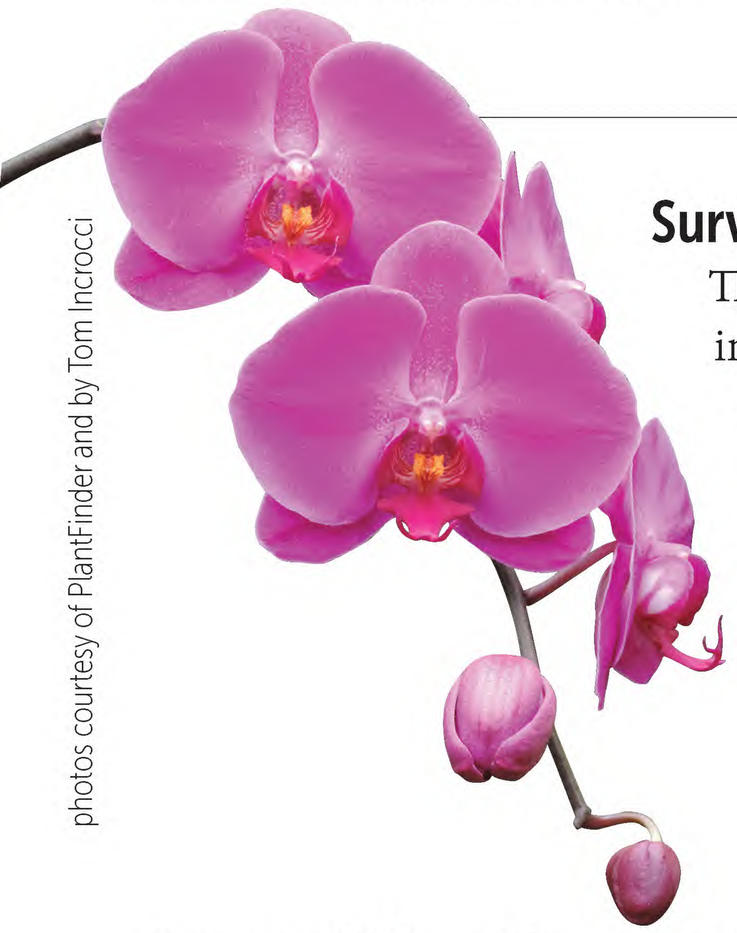
This year, the Garden will also start a new plant collection focused on the flora of the Russian Far East and Altai regions. The new display will be located along the path between the Climatron® and the main gate to the Doris I. Schnuck Children's Garden. The collection will be expanded over the years, says Andrew Wyatt, Vice President of Horticulture and Living Collections. The first stage will feature conifers native to that region. "This landscape ties in with our long-term collaboration in the U.S.–Russian Botanical Exchange Program," he says.



Garden for the World Update

Construction is underway to renovate the gatehouse cottage and surrounding gardens. When complete, the new Herring House will host private events, small gatherings for members and donors, and visiting guests. The surrounding gardens will be renamed Lauren's Secret Garden. The plantings are inspired by the work of British horticulturist and garden designer Gertrude Jekyll, who designed gardens in the U.S. and Britain in the mid-1800s.

Progress continues on the plans for reopening Henry Shaw's museum. Construction is set to begin in late 2016, and the museum will reopen to the public at the end of 2017. Thanks to a lead gift from the Sachs family, the museum will be renamed the Samuel and Dena Sachs Museum. For more, visit www.mobot.org/fortheworld.



photos courtesy of PlantFinder and by Tom Incrocci

Surveying the Orchid Collection

The Horticulture team recently completed a three-year inventory of the orchid collection. "This inventory goes a long way in developing our collection for the future," says Rebecca Sucher, Living Collections Manager. "We can't build it if we don't know what we have to begin with." The collection's focus is to support orchid conservation, adding species of conservation concern to prevent extinction, build cultivation knowledge, and support restoration.

Orchid Survey Results

6,329	individual plants*
2,784	accessions
2,112	taxa
2%	of the known 27,800 species
7%	accessions are wild source
9%	accessions are threatened/ endangered
950	plants used in the 2016 Orchid Show

**not including those in the Climatron®*

did you know?



The Missouri native persimmon (*Diospyros virginiana*) is one of the few ebony species occurring outside of the tropics.

Garden Leads the Study and Protection of Ebonies around the World

Ebonies are most commonly known for their black heartwood. They are widely cultivated for their fruit, persimmons, beautiful flowers, and attractive fall colors. However, over the years they have been exploited to a point that many species now face extinction. That is why in 2014, thanks to a $375,000 grant from the Fondation Franklinia, the Garden launched the Global Ebony Assessment.

Significant progress has been made on the project's principal tasks. This includes the recently completed *Global Survey of* Ex situ *Ebony Collections,* commissioned by the Garden and published by Botanic Gardens Conservation International (BGCI). *Ex situ* collections, meaning those that provide species protection away from their natural habitat, can be a key tool in conserving those species that need to be preserved before they go extinct. The report's conclusions indicate that less than 25% of ebony taxa are currently protected in *ex situ* collections. "Hopefully this survey will inspire botanical gardens to collect and expand their living collections of ebonies, especially locally endemic species," says Garden Curator Dr. George E. Schatz, one of the report authors and lead investigator on the Global Ebony Assessment. The project also includes conservation genetic studies being carried out by the Garden's Dr. Christy Edwards and Alex Linan, a graduate student at Saint Louis University.

approx. 1,000,000

specimens from continental Africa in the Garden's 6.6-million Herbarium collection. An additional 250,000 are from Madagascar.



This *Rhopalocarpus longipetiolatus*, a member of the Madagascar-endemic family Sphaerosepalaceae, is now being propagated at the Garden.

Supporting Conservation Efforts in Madagascar through Capacity Building and Horticulture

Horticulturist Brock Mashburn traveled to Madagascar in December 2015 to visit two sites, Parc Ivoloina and Macolline, where he advised Malagasy nursery staff on propagation, nursery production, horticulture techniques, and more. "This is part of a larger collaboration where horticulture staff are helping with capacity building of horticultural skills and collections management techniques in Madagascar to support our plant conservation work," says Andrew Wyatt, Vice President of Horticulture and Living Collections. "We are also supporting the development of *ex situ* conservation collections at Parc Ivoloina."

The Horticulture team is also collaborating with the Garden's staff in Madagascar. During the December trip, the Madagascar government gave permission to the Garden to collect and export seeds. It's the first time in the Garden's 40-year history in Madagascar that such a large diversity of living plant material has been exported, says Wyatt. To date, 31 species from the eastern coastal region have germinated in the greenhouses. They will be added to the displays in the Climatron® in late 2016 or early 2017. To learn more about the Garden's work in Madagascar, see page 14.

photos by George E. Schatz and Jack Scott

Com·mu·ni·ty-based Con·ser·va·tion
Conservation that is designed and implemented in direct collaboration with the local community and local community members *–Dr. Pete Lowry*

But what does that really mean? It involves going through several phases that, in the end, result in a more sustainable future both for the community and the environment and natural resources they depend on. The first phase includes identifying the areas where resources are not being used sustainably, resulting in the degradation and loss of biodiversity. Experts then engage the local community, learning about their way of life and natural resource needs. The dialog helps the community start thinking about the future and realize that their current situation cannot be maintained. "A community, no matter how small, is always complex," says Dr. Armand Randrianasolo. "To ask them to change a little bit how they do things is not an easy thing." Impartiality, expertise, and long-term commitment turn into trust. Trust leads to true collaboration and, in the end, results.

To learn more about some of the Garden's community-based projects at home and abroad, see page 10.

Recent Grants and Recognitions

$491,774 Collaborative Research: Evolution and Systematics of the Neotropical Plant Clade of *Schefflera* (Araliaceae)
National Science Foundation

$306,507 Research Experiences for Undergraduates
National Science Foundation

$25,000 Climate and Environmental Changes to Indigenous Lands on the Cape, the Coast and the Islands
National Geographic

$25,000 Reintroduction and Conservation of the Federally Endangered Plant, Pyne's Ground-Plum (*Astragalus bibullatus*)
U.S. Fish & Wildlife Service

A third Brassicaceae genus, *Ihsanalshehbazia*, has been named in honor of Senior Curator Dr. Ihsan Al-Shehbaz.

Trish Rose-Sandler, Data Project Coordinator at the Garden's Center for Biodiversity Informatics, received the Nancy DeLaurier award from the Visual Resources Association for her work with three colleagues in creating the VRA Core 4.0 data standard and the accompanying XML schema.

photo by Karen Fletcher



Plants and the Community

Dr. Armand Randrianasolo, Curator

Dr. Armand Randrianasolo had taken a basic botany class during his first year at the University of Antananarivo in Madagascar, but it hadn't spiked his interest like biochemistry had. However, in 1989 when the biochemistry program was suddenly cut, he heard that American botanists were looking for student volunteers to help with plant collection in the forest.

He met the Garden's Dr. James Miller and went on a 15-day expedition in the forest. He didn't speak English, but he learned what he could from Dr. Miller—now Senior Vice President of Science and Conservation—who spoke to him in French and encouraged him to continue to learn.

Today, as a Curator in the William L. Brown Center, Dr. Randrianasolo continues to study plants while working closely with communities in Madagascar to preserve what's left of the country's rich flora, developing conservation and ethnobotany programs that deepen the understanding of the relationship between plants and people. "When researching community-based conservation, I knew I didn't want this to just be a project that after it's done, we leave. I wanted to do something more solid than that," he says. "Even though I didn't know anything about conservation at that time, I knew that it's basically all about science combined with socio-economic development."

what can you do?



Take the Pledge to Spend More Time Outdoors

In April, the Garden kicked-off spring with "Meet Me (Outdoors) in St. Louis," a two-day event to celebrate the many everyday ways people can discover, experience, and conserve nature and the great outdoors. Through the rest of the year, the Garden also invites you to take the pledge to spend more time outdoors. Visit www.mobot.org/meetmeoutdoors to download the pledge and check out the outdoor class offerings at the Garden, Butterfly House, and Shaw Nature Reserve. Don't forget to share your photos with us on social media using the hashtag #meetmeoutdoors.

Want to take your experience to a new level? Volunteer at one of the many outdoor opportunities that the Garden-led BiodiverseCity St. Louis network offers each month. Visit www.biodiversecitystl.org to learn more or to sign up for their monthly e-newsletter.



SENSATIONAL Summer Nights

Enjoy Garden-Style Happy Hour

Experience the beauty of the Garden with all of your senses during extended hours each Thursday evening this summer! Enjoy botanically inspired cocktails and light food with a lovely view of the Garden as the Sassafras patio is transformed into the Botany Bar. Join friends for a round of coloring and conversation; browse botanical books; or just relax to live music by a rotating selection of local artists.

Then head out to the Garden and engage with plants at sensational stations or talk to some of the Garden's plant experts in the new PlantLab.

Thursdays from 5 to 8 p.m. No reservation required. Regular Garden admission applies; free for members.



Discover Fun

Friends and Family-level members and above enjoy free admission to the Children's Garden every day (April–October) as well as an additional membership gift. Visit the new Edward Jones Hall for the renovated Brookings Exploration Center, new PlantLab, and other amenities.

Visit the Membership Services Desk or www.mobot.org/membership to learn more.

LITTLE SHOP AROUND THE CORNER

ANTIQUES • HOME & GARDEN FURNISHINGS



Donate Your Antiques or Furniture and Support the Garden's Mission

Downsizing or done with spring cleaning? Consider making a donation to the Garden's Little Shop Around the Corner, an antique and collectible shop that resells vintage merchandise donated to the Garden, with proceeds supporting the Garden. The shop specializes in high-quality furniture, artwork, vintage jewelry, silver, china, and other accent furnishings. Stop by to make your donation or shop for unique antiques at 4474 Castleman Ave., just down the street from the Garden's main entrance. The shop is open Tuesday through Saturday from 10 a.m. to 4 p.m. Members always receive a discount.

photos by Lisa DeLorenzo Hager and Melissa Tucker

celebrate 80

With Dr. Peter Raven

To celebrate President Emeritus Dr. Peter H. Raven's birthday, the Garden is offering 80¢ on-site admission (free for members) on June 13 from 9 a.m. to 5 p.m. Stop by to meet and greet him from 1 to 3 p.m. in Monsanto Hall and sign the giant birthday card. For more details, visit www.mobot.org/events.



Flowers of the new species, *Clerodendrum kamhyoae*, recently described from northern Madagascar.

Discover Madagascar

Join us this summer for a series of events and programs highlighting Madagascar's fascinating flora and the Garden's work there. For more details, please visit www.mobot.org/events.

Plant Detectives | June 14 | Shoenberg Theater

Associate Curator Peter Phillipson shares the story about the discovery of *Clerodendrum kamhyoae*, a species from Madagascar new to science. Free; registration required; 6 p.m.

World Exploration | June 15 | Ridgway Visitor Center

Go behind the science with Garden researchers before heading outside to enjoy the Whitaker Music Festival. Free after 5 p.m.

Environment and Music | June 16

Enjoy a performance by Malagasy musician and environmental activist Razia Said during Sensational Summer Nights. Then at 7:30 p.m., listen to Marie Hélène Kam Hyo Zschocke and Joey Moscovitch talk about their work to help the people in Antalaha. Free; registration required.



Tell Us If Are You an Educator

If you are a PreK–12 teacher, administrator, or professional; homeschooling parent; or higher ed professor, instructor, or staff, we would love to know. Please send an email to our Education team at teachertraining@mobot.org with your name and preferred email address so we can keep you up-to-date on all the Garden offers educators.

Don't miss our new Educator Appreciation Week on August 1–7 (see page 20).



Enjoy yoga at the Garden during Member Tuesday Nights and Wednesday mornings.

Connect Nature and Wellness

This August, Garden Wellness Partner Aetna offers visitors a custom mindfulness podcast to enjoy during a visit to the Garden. Aetna ear buds will be available at the Visitor Engagement Station for any guests who need them.

Aetna is also offering yoga in the Garden during Member Tuesday Nights in August (5:30–6:35 p.m.) and on Wednesday mornings (7:30–8:35 a.m.). Programs will be led by certified instructors, and Aetna representatives will host a table during the yoga sessions with mindfulness resources and takeaways. All activities are included with admission and free to members.

photos by Peter Phillipson and Rebecca Heinsiek

it takes a village

community-based conservation at the Garden

Protecting plant diversity is at the core of the Garden's mission. Building upon decades of plant discovery and research, the Garden's conservation efforts operate within the framework of the Global Strategy for Plant Conservation, an initiative adopted in 2002 and updated in 2010 by the United Nations' Convention on Biological Diversity to halt the loss of plant diversity worldwide. While conservation includes a wide variety of science-driven work—from climate change research and seed banking to ecological restoration and species reintroduction—it is intrinsically connected to people. After all, human activities such as development, mining, land clearing for agriculture, logging, and introducing invasive species cause much of the habitat loss around the world.

Engaging a local community is an essential part of the Garden's conservation tool kit. Protecting biodiversity contributes to the livelihoods and well-being of local communities, ensuring clean water and air; a steady, local food supply; reduction of poverty; youth engagement and jobs; and more. But real, effective conservation can only be achieved through carefully planned community development and buy-in. As Dr. Pete Lowry, Director of the Garden's Africa and Madagascar Program, says: "You don't want to be swimming against the current. You can't do this unless people want to do it with you."

Baden | Community Gardening

With the guidance and support of Garden educators, a group of teens in the historic Baden neighborhood in north St. Louis built 18 raised beds and a compost bin and planted fruits and vegetables in June 2015. It was the beginning of the new Baden Youth and Community Garden. They were employed for eight weeks to care for the garden while at the same time gaining the social and professional skills needed in any workplace. After they went back to school, the garden truly became the community's. This was the first phase of a pilot project the Garden launched in collaboration with Baden, the City of St. Louis's Urban Vitality & Ecology Initiative, BiodiverseCity St. Louis, the Riverview West Florissant Development Corporation, STL Youth Jobs, and a host of other organizations.

Today, under the guidance of the Garden's Education team, the community continues to care for the garden. This summer a new round of teens will have the opportunity to spend their school break learning about growing plants, soil and plant nutrition, biodiversity, community leadership, and more. As neighbors plant, water, and harvest the tomatoes, strawberries, and greens, a vacant lot is being transformed into a vibrant gathering space. "People are enjoying the new space," says Laura Tetley, Youth Garden Instructor. "We see the opportunity for the community to value these green spaces, want to create new ones, and learn how a thriving ecosystem is more resilient, more productive, and in the end, better for the well-being of the community."

Madagascar | Basketful of Opportunities

The Agnalazaha Forest, located in southeastern Madagascar, is one of the 12 conservation sites managed by the Garden. It is one of the largest fragments of littoral forest remaining in Madagascar and home to many locally endemic and endangered species of flora and fauna, including the gray-headed lemur.

Dr. Armand Randrianasolo, Curator in the Garden's William L. Brown Center, has been working with the local community for over a decade. When the Garden decided to do conservation work in Madagascar in 2002, he was tasked with helping to develop the community-based conservation program. The Agnalazaha Forest was chosen as the first of the two sites to test this new approach given its botanical importance—littoral forests hadn't been studied extensively then—and the community's willingness to open its doors to the Garden. "The approach is not simple," he says, "but it's really down to earth and seeing how people live."

Conservation efforts include the eradication of invasive species and reforestation using locally propagated seedlings of native trees; vegetable gardening; higher-yielding rice cultivation; and maintenance of irrigation systems. It also includes collaboration with the Blessing Basket Project, which enables local women to use *Lepironia mucronata* to produce baskets for sale in the United States. In fact, sustainable harvesting methods shared with the community have led to the regrowth of *Lepironia mucronata* in its natural habitat. The project has also empowered women and raised awareness about the importance of biodiversity and its conservation. Browse the different styles and get your own Blessing Basket at the Garden Gate Shop.



Sunflowers | Biodiversity in Vacant Lots

It's been three years since the first sunflowers were planted in a vacant lot in the Old North neighborhood in St. Louis. The Sunflower+ Project–STL started as a winner in the Sustainable Land Lab competition by Washington University in St. Louis and the City of St. Louis. Since then it has inspired two additional communities—Delmar and Dutchtown—to have their own vacant lots transformed by sunflowers. This summer, they will once again become thriving living spaces in lots once considered eyesores, a public safety liability, and a burden to maintain.

Sunflowers were originally chosen because they were thought to extract lead and other contaminants from the soil. While tests have proven this effect to be negligible, the project now serves as an information tool to address the misinformation, says Richard Reilly, Residential Energy Programs Manager at the Garden's EarthWays Center. Reilly is one of the original team members who launched the project in 2013 and today continues to oversee it and to provide advice to other cities interested in similar projects.

In addition to serving as living classrooms for people of all ages to learn about biodiversity, pollinators, soil health, sustainability, and more, these lots showcase how low-carbon-footprint initiatives can bring nature back into urban areas. "One neighbor told me: 'Goldfinches may not be rare in St. Louis, but they are rare here,'" Reilly says. For more information, please visit www.facebook.com/SunflowerProjectSTL.

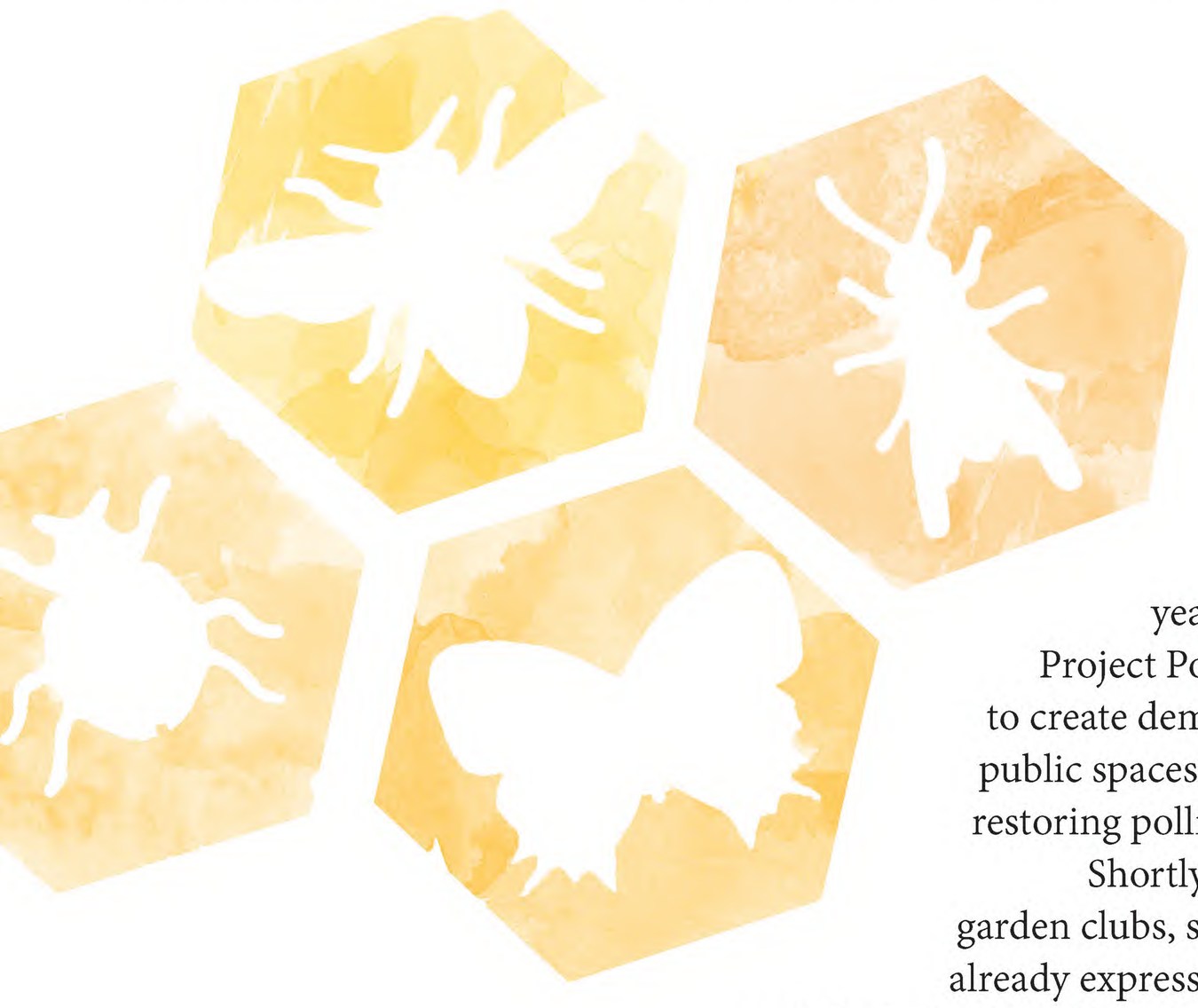
Honeysuckle | Tackling Invasives

Bush honeysuckle (*Lonicera maackii*) is an invasive plant species that degrades woodlands, fields, and stream banks into impenetrable thickets lacking ecological, economic, or recreational value. In an effort to raise public awareness about the need for its removal, the Garden-led BiodiverseCity St. Louis network organized the first semiannual Honeysuckle Sweep Week in early March. More than 290 volunteers—from students and neighborhood groups to Master Naturalists and environmental groups—removed more than 210,000 square feet of bush honeysuckle throughout the St. Louis region. "Once it was removed, it was so nice to see a more open woodland and stream bank," says Meg Hoester, Senior Supervisor of Student Programs–Youth and Community.

Participants learned how bush honeysuckle critically damages the natural ecosystem and decreases human enjoyment and recreation in our green spaces. Informative discussions during the pulls also provided home owners and landowners the skills needed to eliminate bush honeysuckle on their own property as well as what to plant in its place after removal.

Honeysuckle Sweep Week partners include the Garden's Deer Creek Watershed Alliance and EarthWays Center, Forest Park Forever, Great Rivers Greenway, Missouri Department of Conservation, Missouri Master Naturalists, Open Space Council, St. Louis Audubon Society, and Think About Tables. To learn more about the Honeysuckle Sweep Week this fall, visit www.biodiversecitystl.org and sign up for the e-newsletter. You can also learn more about invasives at www.mobot.org/invasives.





Pollinators | Every Garden Counts

Pollinator populations throughout the world have been declining at an alarming rate, but one doesn't have to look far to understand how the problem affects our everyday lives. More than 75% of flowering plants, including the ones that feed us, rely on animal pollinators. One of the factors contributing to the decline is habitat loss. Earlier this year, the Butterfly House and St. Louis County launched Project Pollinator, a community garden initiative. The project aims to create demonstration gardens in county parks, libraries, and other public spaces, and to engage the community in learning more about restoring pollinator habitats to improve the health of native pollinators.

Shortly after launching, the project garnered interest from local garden clubs, schools, and community groups. Almost 10 of them have already expressed interest in planting their pollinator gardens this year, and Chris Hartley, Education Programs Supervisor at the Butterfly House, expects that number to grow. "We rely on the community for a project like this because pollinators benefit from an abundance of gardens, and there need to be a lot more gardens than the ones the Butterfly House can plant," he says. "Our role is to provide the information necessary for people to understand the need for pollinators—not just honey bees and butterflies, but all pollinators." To learn more, visit www.butterflyhouse.org/projectpollinator.

Rainscaping | Green Infrastructure

Rainscaping is any combination of plants, water features, permeable pavement, and other activities to manage stormwater as close as possible to where it falls. The goal is to stop runoff from reaching streams and rivers, which could lead to water pollution, health challenges, and property damage. The Garden is a leader in promoting plant-based rainscaping to facilitate safer, cleaner water with initiatives such as the Deer Creek Watershed Alliance and the Shaw Series for Stormwater and Landscape Professionals. In partnership with other local organizations, such as the Metropolitan St. Louis Sewer District (MSD), the Garden engages the community on how they can be part of the solution through ways they landscape their properties.

In 2015, the Garden worked with MSD's Project Clear to facilitate the Rainscaping Small Grants Program, which awarded more than $135,000 to 53 St. Louis City property owners who installed rainscaping features. This effort is combating the complications that come with stormwater runoff amplified by the combination of aging infrastructure and increasing impervious surfaces.

Landowners within the project's program area created rain gardens and installed green roofs, among other things, with the guidance of the Garden's EarthWays Center staff, the horticultural expertise of Shaw Nature Reserve's Scott Woodbury, and the extensive resources in the Garden's online Rainscaping Guide. "The resulting projects now mean far more to me than the financial benefits of this project," says Shelley Henderson, Garden member and one of the program's participants. "I learned so much about plants, our city, and the environment by creating my rain garden, and now have a vested interest in improving all three."

To learn more about rainscaping, visit www.mobot.org/rainscaping. To learn more about Project Clear and to apply for the next round of small grants for rainscaping, please visit www.projectclearstl.org/rainscaping.

Peru | Training the Guardians

For the past 15 years, the Garden has partnered with government agencies and local communities in Peru to conserve the endangered biodiversity of its Selva Central. Supporting a wealth of flora and fauna, many of which can't be found anywhere else, the Selva Central is one of the more richly diverse yet vulnerable places on Earth. Two key protected areas in this region are of particular interest: the Yanachaga-Chemillén National Park and the Yanesha Communal Reserve.

In 2015, thanks to a $49,457 grant from the U.S. Fish & Wildlife Service, the Garden is playing a key role in working with the local communities who live around these two protected areas and the park guards charged with monitoring and protecting them. Garden-led workshops allow guards to learn about field methodologies for inventory as well as monitoring flora and fauna. They will also become more prepared to manage this biodiversity hotspot. At the same time, Garden staff are working with residents living in the nearby areas, or buffer zones, who often ignore the restrictions established to protect the natural resources. This includes raising residents' awareness of the need for conservation and supporting small citizen groups (*comités*) through training and the introduction of good agricultural practices.

missouri botanical garden in MADAGASCAR

a look at the program's evolution through the years

Although far from the Garden's home in St. Louis, Madagascar is a place where the Garden's quest to document, safeguard, and raise awareness of the importance of plant diversity is making a globally significant contribution. Identified as an area of exceptional interest for its botanical diversity and conservation importance, Madagascar has been a priority area for the Garden's international program for well over four decades. The first visits to Madagascar by Garden scientists took place between 1972 and 1976, and since the mid-1980s, there has been a continuous in-country program that has evolved into a cornerstone of the Garden's plant science and conservation work.

Expanding Plant Discovery

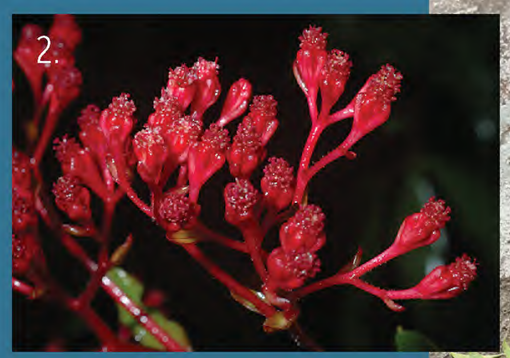
Starting in 1986 and led by Dr. Pete Lowry, Senior Curator and Director of the Africa and Madagascar program, the Garden's activities initially focused on botanical inventory work, especially in protected areas. Garden botanists also collaborated with local institutions and other international organizations working in Madagascar, such as the World Wide Fund for Nature (WWF), to build in-country capacity and train local people to explore and document the country's flora. "We realized that at the university, which was very resource-poor, nobody was able to go into the field and learn how to see plants, how to study and collect them, or how to ask research questions," Dr. Lowry says. "Today, almost all of the scientists working for the Garden in Madagascar came up through our training program."

The Garden also recognized the importance of providing Malagasy students with more than just in-country training. It partnered with the University of Missouri–St. Louis (UMSL) to provide graduate-level education to students from Madagascar. Dr. Armand Randrianasolo, the first of several students to receive advanced degrees from UMSL, is now a Curator for the Garden's William L. Brown Center (see page 7).

Grassroots Conservation

When the program held a strategic planning meeting in St. Louis in 2002, Malagasy staff members lobbied for playing a more active role in addressing their country's growing conservation effort. They argued that it was not enough just to say that the botany being done was contributing to conservation; they wanted to help make conservation actually happen. "All of us felt that the country didn't get enough from this knowledge. We wanted to do something," recalls Dr. Randrianasolo. That's when the decision was made for the Garden to step up and contribute to conservation in Madagascar.









1. Dr. James Miller, Senior Vice President of Science and Conservation today, and local guides collecting plants in 1989 on the summit of Marojejy Mountain. | 2. *Lowryanthus rubens*, one of two new genera of plants discovered in 2006 at Bemangidy Forest. | 3. Curator Dr. Armand Randrianasolo was the first student trained through the Garden's partnership with UMSL. | 3. Community members at the Ankafobe Forest with seedlings of native trees for ecological restoration.

It started with one site—the Agnalazaha Forest in the Mahabo-Mananivo township—and over the last decade has expanded into the 12 community-based conservation sites jointly managed by the Garden and local residents. The sites were selected because of their botanical importance, the diversity of ecosystems they represented, and the local communities' willingness to welcome and collaborate with Garden staff. "When we picked these sites, we decided to stay engaged through thick and thin," says Dr. Lowry. "We made a long-term commitment to each of these communities because history has shown that this is the only way to achieve lasting conservation."

Back to Basics

After focusing most of their efforts and energy on building a strong network of conservation sites, the Garden's Madagascar staff is now planning to return to one of its core activities, plant discovery. The 12 sites were chosen because of their botanical importance, but working with the local communities to gain their trust and establish sustainable development alternatives to halt the loss of biodiversity had to be the first step, and it takes time. "It's not as easy as saying: we come in and do this," says Dr. Randrianasolo. "It's a complex process."

Continuing conservation work remains important, but the program is also focusing on carefully documenting the plant species growing at each of the sites. At the same time, the Garden is building on its long history of helping to understand the impacts of land use practices on Madagascar's natural resources. This includes conducting botanical inventories and surveys in botanically important areas and helping to measure and mitigate the impacts of mining and forestry projects. This work will be particularly important in places located outside of designated protected areas where there is still important biodiversity. The program will also look to rejuvenate its training efforts and help a new generation of scientists gain the knowledge and experience that the Madagascar staff now has thanks to more than two decades of botanical and conservation work.

Finally, the Garden is now seeking to take the lessons learned and successes accomplished and connect them to the broader development community in Madagascar. The goal will be to find partners who want to broaden their focus areas—education, health, agriculture—by including a biodiversity component. Dr. Lowry hopes this approach will enable the Garden to multiply its impact, strengthen the country's conservation efforts, and have an even greater positive impact on biodiversity. "It won't work everywhere, but it doesn't have to in order for it to be worth the effort to make it happen," he says. "It's now time for us to leverage what we have learned and take it to the next level, while still staying focused on exploring, understanding, and protecting the amazing plants of this fascinating island."

photos courtesy of P. Lowry, A. Randrianasolo, and C. Birkinshaw

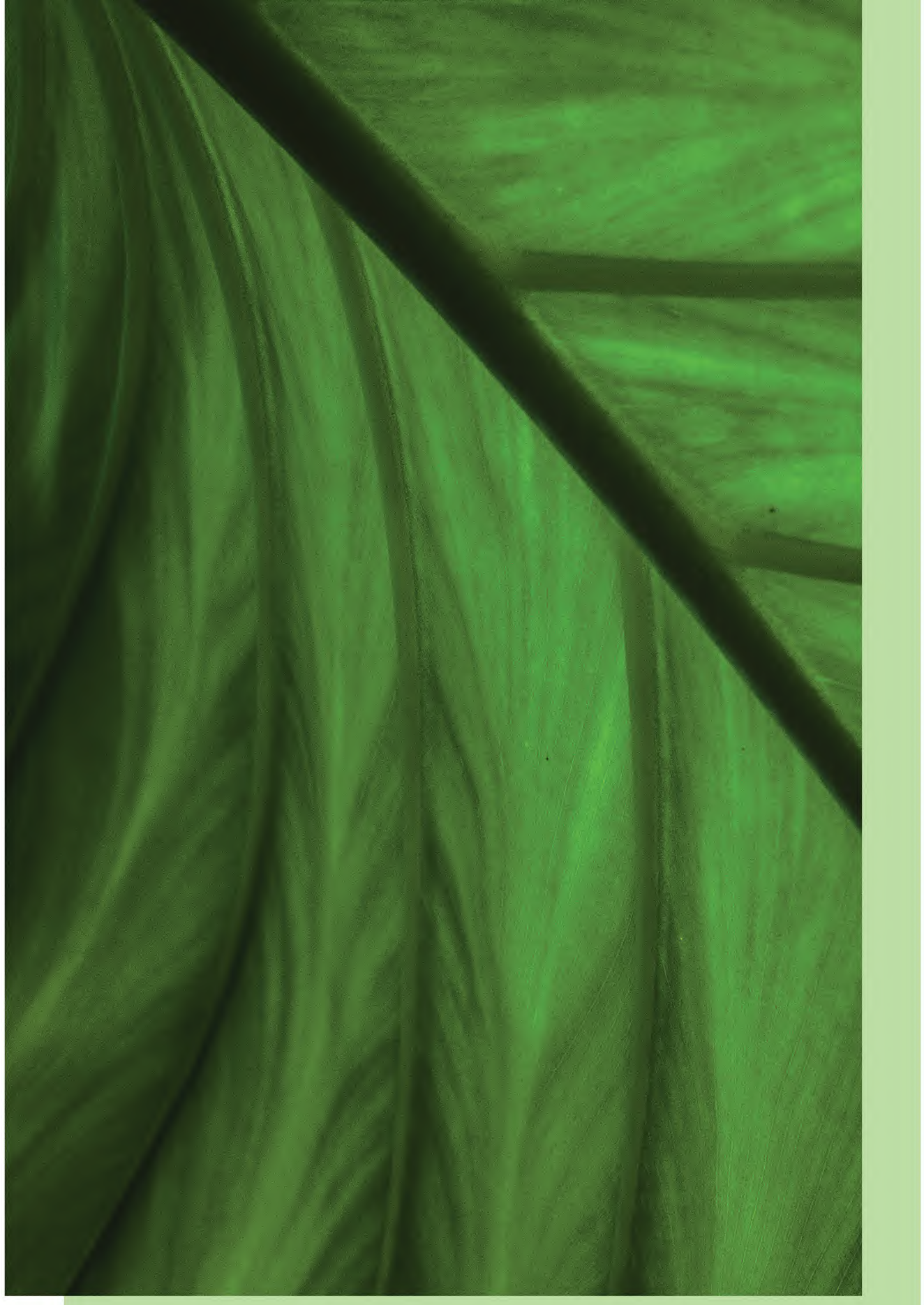
Discover Madagascar

Join us June 14–16 as we celebrate Madagascar with a series of programs and events highlighting the country's flora and the Garden's work there. More details at www.mobot.org/events.

all shades of GREEN

enriching life through sustainability

As a world leader in plant discovery and conservation, the Garden embraces its mission to discover and share knowledge about plants to enrich life. Healthy, vibrant ecosystems, rich in biodiversity, are essential to ensuring a sustainable future for generations to come. That is not only reflected in the Garden's work with plants but also in its commitment to sustainability. "Our love of plants and the understanding that our everyday choices impact the natural world are the basis for our green efforts at the Garden," says Deborah Frank, Vice President of Sustainability. "We hope they inspire the community to live sustainably as well."



Green Garden

After more than 150 years, Henry Shaw's gift to the people of St. Louis continues to be a renowned botanical institution. It features some of the region's most beautiful display gardens that represent a diverse collection of plants from around the world, many protected against the threat of extinction. As it continues to grow strong, the Garden focuses on using sustainable methods to "grow green"—from using a rainwater catchment system to collect 45,000 gallons of stormwater for irrigation to integrating a beneficial pest-management system throughout the greenhouses.

The Garden is also committed to "building green," including the way it designs, builds, and operates its facilities. Using plants as part of the solution, the parking lot features rain gardens and porous pavement to capture rainwater, filter pollutants, and slow the rate of stormwater runoff. Solar panels and high-efficiency lighting, heating, cooling, and plumbing systems are also part of the Garden's commitment to reduce the impact its buildings have on the environment.

Finally, the Garden leads by example and shares knowledge and experience with the community—businesses, municipalities, local organizations, and, of course, you! From striving to have "zero-waste" events to providing information about sustainable living options through the Green Resources Answer Service, the Garden "shares green" to inspire others to make sustainable choices that, in the end, positively affect plants and the environment.

So next time you visit the Garden, take a closer look at the different ways you are part of the Garden's mission to be truly "green." The water stations to refill your water bottle, the compostable tableware at the different events, the various recycling bins throughout the grounds, and more are just part of the Garden's commitment to sustainability and its effect on its main focus: plants and people.

YOU CAN BE GREEN, TOO!

Remember, every action, no matter how small, adds up. Check out this list of suggested activities that can help you be green today and greener tomorrow.

Want more? Visit www.mobot.org/sustainability or contact the Green Resources Answer Service at (314) 577-0246 or greenresources@mobot.org.

Grow Green

- Plant native species. They are not only adapted to thrive in the local climate but also support other native wildlife.
- Remove invasive plant species from your property, such as bush honeysuckle, and replace with native plants.
- Collect water in a rain barrel to irrigate your plants.
- Plant a rain garden.
- Learn more about beneficial insects and how they can help control pests.

Build Green

- Sign up for an energy audit and learn what efficiency measures are best for your home.
- Make sure air leaks are eliminated and your house is well insulated.
- Switch to smart light bulbs that use less energy and lower utility bills.
- Use a programmable thermostat.
- Shop for ENERGY STAR®, high-efficiency appliances.

Share Green

- Buy local products, which not only support the local economy but also travel a shorter distance to get to you.
- Grow your own vegetables and fruits and share any surplus with your neighbors.
- Recycle! Talk to your local waste management company to learn more about their recycling options.
- Use reusable tableware and bags when you go on picnics with friends and family.
- Introduce your employer to the St. Louis Green Business Challenge and encourage them to participate.













photos by Monique Mullen, Kevin Kersting, Charles Schmidt, Molly Krohe, and Heather Marie Osborn

Don't miss it!

Explore sustainable home improvement ideas and plant-based options for living greener at the Green Homes Festival on June 4. For more information, visit www.mobot.org/greenhomesfest.

just for members













NEW! Member Discount at Sassafras

Enjoy the delicious food at the Garden's café, certified by the Green Dining Alliance as a sustainable restaurant. Show your member ID at Sassafras on the last Tuesday of each month to enjoy a 10% discount. For more, please contact Membership at (314) 577–5118 or membership@mobot.org

Member Tuesday Nights

Memorial Day–Labor Day | 5–8 p.m.

Enjoy extended Tuesday hours this summer plus admission to the Children's Garden, Member Day programs, Science:30 presentations, chess games with World Chess Hall of Fame instructors, docent-led tours, and a rotating menu at Sassafras. More at www.mobot.org/membertuesdays.

Science: 30

6:30 p.m. | Spink Pavilion

Half-hour discussions with Garden experts on select Member Tuesday Nights. Reservations required. Cash bar.

- June 7: Botanical journeys in Ecuador
- July 19: Fifty years of botanical exploration in the Tropics
- August 9: Inside stories from Madagascar and New Caledonia

Member Day: Setting up Your Garden Party

June 21 | 6–7 p.m. | Shoenberg Theater

Get entertaining tips from Meg Huber and David Zettler. Create one-of-a-kind parties incorporating your own glassware, dishes, candles, and linens. Presented during Member Tuesday Nights. Reservations required.

photos by Brian Mueller, Rebecca Hensiek, Monique Mullen, Christine Siebert, Flannery Allison, and Josh Nezam











photos by Heather Marie Osborn, Ning He, Jean McCormack, Josh Nezam, and Kimberly Bretz

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Information and registration at (314) 577-5118 or www.mobot.org/memberevents unless otherwise noted.

Member Day: Rain Gardening: Letting Mother Nature Water Your Garden

July 12 | 6–7 p.m. | Shoenberg Theater

Chat with Master Gardener Ned Siegel about capturing stormwater runoff in a colorful garden that attracts butterflies and birds. Presented during Member Tuesday Nights. Reservations required.

Family Picnic

July 15 | 5:30–8:30 p.m.

Bring your waste-free picnic or purchase picnic fare on-site. Enjoy music, face painters, crafts, balloon artists, and a chance to play in the Children's Garden after hours. Reservations required.

Member Day: Paper Kite Festival

August 1 | 5:30–7:30 p.m. | Butterfly House

Learn how paper kite butterflies are connected to our local monarchs. See kite-building demonstrations and decorate your own kite to take home. Reservations required.

Member Day: Preserving Your Harvest

August 2 | 6–7 p.m. | Shoenberg Theater

Join Nancy Sauerhoff of Seven Oaks Farm & Orchard to learn about preserving your produce. She'll share the history, science, techniques, and equipment needed, plus recipes and resources. Reservations required.

special events

Sensational Summer Nights

Thursdays | June 2–September 1 | 5–8 p.m.

Experience the Garden with all of your senses. Sip flora-inspired cocktails and savor delectable fare from the Botany Bar, engage with plants at sensational stations, and gather gardening tips from experts. Regular Garden admission applies; free for members.





Green Homes Festival

June 4 | 9 a.m.–4 p.m.

Join us for a hands-on, day-long festival of learning, playing, and engaging in sustainable, healthy lifestyles. Included with Garden admission; free for members.

Whitaker Music Festival 2016

Wednesdays | June 1–Aug. 3

Concerts: 7:30 p.m. | Free after 5 p.m.

June 1	The Feyza Eren Group
June 8	The Steve Ewing Band
June 15	Clusterpluck
June 22	The Grooveliner
June 29	Saint Louis Social Club
July 6	Jay Farrar
July 13	Ptah Williams
July 20	Erin Bode Group
July 27	The Cree Rider Family Band
August 3	Joe Mancuso

Funded by WHITAKER FOUNDATION

Firefly Festival

June 8, 15, and 22 | 8 to 9:30 p.m. | Butterfly House

Join us for our popular celebration of Earth's living lanterns. Enjoy firefly-themed activities, glow walks inside the Tropical Conservatory, and an outdoor journey to see real fireflies. For ages 4 and up. $12 members; $14 nonmembers. Registration required: www.butterflyhouse.org.

Illinois Appreciation Week

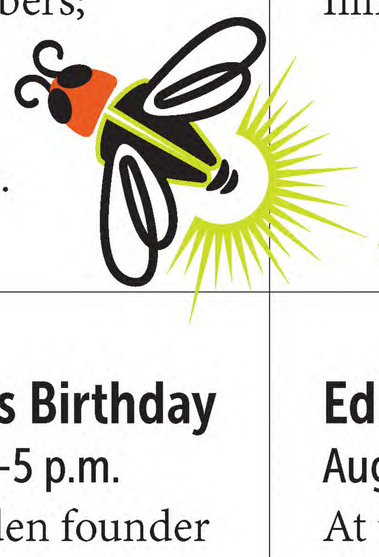
June 12–June 18

Illinois residents receive $4 Garden admission from 9 a.m. to 5 p.m.; a 10% discount in the Garden Gate Shop and Little Shop Around the Corner; and a 20% discount off new or renewal memberships purchased this week (with a valid Illinois ID).

Adventures with Cocktails

June 17 | 5:30–8 p.m. | Doris I. Schnuck Children's Garden

Join us for an adults-only party in the Children's Garden. Enjoy signature cocktails and spirit tastings from distilleries across Missouri. Proceeds benefit the Children's Garden. Guests must be at least 21. $25 members; $35 nonmembers; $15 designated driver. Tickets required: www.mobot.org/cocktails.



Henry Shaw's Birthday

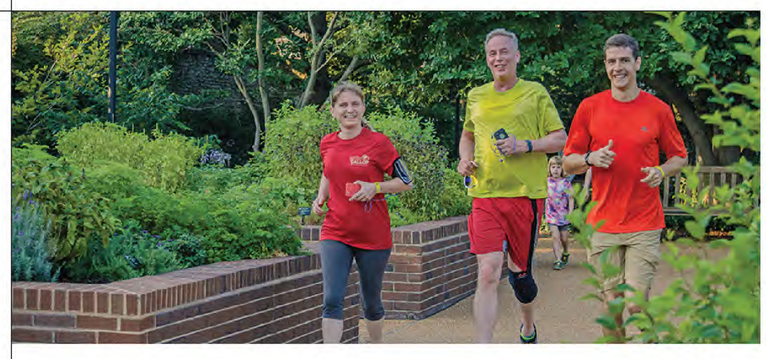
July 24 | 9 a.m.–5 p.m.

Celebrate Garden founder Henry Shaw's 216th birthday with free admission for all visitors from 9 a.m. to 5 p.m., festivities from 10 a.m. to 3 p.m., and a chance to see Henry Shaw's Museum from 10 a.m. to 4 p.m. No registration is required. New this year: enjoy 20% off Garden memberships at the Membership Services Desk. More details at www.mobot.org/events.

Educator Appreciation Week

August 1–7

At the Garden, we thank educators for their daily, unwavering commitment to creating curious, lifelong learners. The first week of August, educators receive 20% off memberships and a chance to enjoy the Garden for free on Tuesday, August 2, from 5 to 8 p.m., as they learn more about the Garden's school-supporting offerings. More details at www.mobot.org/events.



Garden Gallop

August 14 | 7–9 a.m.

Join the Young Friends of the Garden for a 5K fun run. All proceeds benefit the Children's Garden. $30 members and virtual runners; $40 nonmembers. Tickets required: www.mobot.org/gardengallop.

photos by Heather Marie Osborn and Lisa DeLorenzo Hager

From gardening tools and unique toys to vintage items and local products, the Garden shops have just what you're looking for.
Look for these icons to know where each event or sale is taking place.

Garden Gate Shop
4344 Shaw Blvd.
St. Louis, MO 63110
Monday–Sunday
9 a.m. to 5:30 p.m.
(314) 577-5137

Butterfly House Gift Shop
15193 Olive Blvd.
Chesterfield, MO 63017
Tuesday–Sunday
10 a.m. to 4 p.m.
(636) 530-0076 ext. 15

Little Shop Around the Corner
4474 Castleman Ave.
St. Louis, MO 63110
Tuesday–Saturday
10 a.m. to 4 p.m.
(314) 577-0891

Around the World Wine Dinners
DON'T MISS!

Third Thursday of the month | Through October | 6:30 p.m. | Spink Pavilion

Our popular wine dinners are back! Travel to wine-producing regions around the world through a five-course dinner paired with a different wine from the same region. $65 (plus 18% service charge and tax). Advance reservations required: call (314) 577-0200.

photo by Andrea Androuais

First Fridays
First Friday of the month |

Discover something new—from book signings to food samplings to trunk shows. More at www.mobot.org/shop.

Member Days Sale
June 3–5; July 1–3; August 5–7 |

All Garden members receive 20% off purchases in the shops.

Firefly Festival Sale
June 8, 15, and 22 |

Celebrate Firefly Festival at the Butterfly House with 20% off on the event evenings. See shop for details.

Peter H. Raven's Birthday
June 13 |

Buy a collection of 12 Garden postcards for 80¢ (regular price $1.99).

Staff and Volunteer Sale
July 13–15 |

As a thank you for making the Garden a world-class institution, all Garden staff and volunteers receive an extra 10% off their purchases.

Café Flora
Through October 30 | 10 a.m.–2 p.m. |
NEW! Open Saturdays

Enjoy a delicious brunch at the iconic Spink Pavilion with a view like no other. Info at www.mobot.org/brunch.

Member Night: Cactus and Succulents
July 11 | 5–7 p.m. |

Drop in for a shopping experience and enjoy a 20% discount during these extended hours for members only. Learn about the different types of cacti and succulents with specialist-led discussions every 30 minutes until 6:30 p.m. No reservations required.

Independence Weekend Sale
July 2–3 |

Butterfly House visitors enjoy 10% off storewide, and members receive an additional 10% discount during the holiday weekend. See shop for details.

Paper Kite Festival Sale
Sundays in August |

To celebrate the Butterfly House's Paper Kite Festival, every Sunday in August visitors enjoy 20% off at the shop, and members receive an additional 10% discount.
See shop for details.

Extended Evening Hours
Tuesdays and Thursdays |

This summer, the Garden Gate Shop will stay open until 8:30 p.m. during Member Tuesday Nights (see page 18) and Sensational Summer Nights (see page 20). Enjoy these extended shopping hours!

» staff pick



Little Pleasures Foods

Try these locally made dip mixes perfect for your next party! More than 10 varieties—from cajun's revenge and apple strudel to spinach asiago and sweet red onion. $5.99 each, 2 servings per container. Great for summer entertaining! Get yours at the Garden Gate Shop.

commemorative gifts

January–March 2016.
A commemorative gift is a wonderful way to honor family and friends. Gifts of $50 or more are listed in the *Bulletin*. For more information about giving opportunities at the Missouri Botanical Garden, please call (314) 577-5118 or make a commemorative gift at www.mobot.org/tributes.

In Honor of

Janet Aach
The Sara and Fred Epstein Family Foundation

Ms. Jill Cumming
Mr. and Mrs. James H. Grove, Jr.

Jason Delaney
Ann Case

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Colonel and Mrs. Don Gordon
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Robb Lappe and Greg Heck
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Glenn Kopp
Parkview Horticultural Society

Roberta Gene Kulier
Mike, Sara, and Jenny Kulier

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Lori Swanchak

Andrew Wyatt
St. Louis Herb Society

In Memory of

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MEMBERS' ENTRY COURT

January–March 2016.
For more information, call (314) 577-5118 or visit www.mobot.org/donate.

Engraved Clay Bricks

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Ms. Adeline Branahl

Ms. Christine Marie Dresch
Mrs. Susan Ross

Mrs. Helen L. Halter
Mrs. Deborah Halter

Mr. and Mrs. Kaufhold
Mr. Craig Hamby and Mr. Brian Magill

Mr. Benjamin S. McLaughlin
Mrs. Amy McLaughlin

Jeffrey D. Million
Scott Million

Charlie and Emily Moran
The Girls from 7900

Emma Sanford
Ms. Claudia Shugert

BUTTERFLY HOUSE

January–March 2016.
Call (314) 577-5118 or visit www.butterflyhouse.org/donate to learn more.

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Teagan Thibodeau
Edwardsville School District, #7

barbara and mike willock

Bridging History and the Future

When Barbara and Mike Willock arrived in St. Louis 35 years ago, the Garden was one of the first places they learned about. "The wife of Mike's supervisor was a volunteer," says Barbara. "She encouraged us to visit. We had a four-year-old son, so our first memberships in St. Louis were to the Museum of Transportation and the Garden. He loved the tram!"

The Garden has remained an important part of their lives. Both enjoy visiting frequently for the beauty and relaxation of the Garden. Over the years, they have learned about the Garden's international role in plant science and conservation through lectures, tours, and behind-the-scenes experiences. The couple has image plates of Captain James Cook's voyages in their home, so it was a treat to visit the Garden's Herbarium and Library and see the herbarium specimens collected on Cook's voyages.

They made a gift to reopen Henry Shaw's museum as part of the *Garden for the World* campaign because of the building's connections to the Garden's history. They have also joined the Heritage Society and created a bequest to support the Garden's science and education work. "We have two passions: one is our church and theological education, and the other is the Garden," says Mike. "Of all the wonderful things we're involved in, these are the two that rise to the top. And that's partly because of your track record of environmental stewardship."



BARBARA AND MIKE WILLOCK

Members since: 1982

What they enjoy most: Coming to festivals and taking their grandchildren to the Butterfly House. Mike also enjoys photographing the Garden and the reciprocal benefits offered to members. Barbara is a gardener, a trait passed down from her grandmother, a talented gardener and a certified flower judge. She also likes to stop by the Plum Viewing Arbor in *Seiwa-en*, the Japanese Garden.

Why we give to the Garden: It excites us to have, in our own backyard, one of the world's foremost institutions working areas that will have the greatest impact on the future. We're proud to support that.

Learn more about the Heritage Society at www.mobot.org/plannedgiving, or contact Joyce Pluhar at (314) 577-5199 or joyce.pluhar@mobot.org.

photos by Kristine Gruver and courtesy of MBG Archives



In Memoriam: Dr. David M. Gates

Dr. David M. Gates passed away this March. He served as Missouri Botanical Garden director from 1965 to 1971 and brought a passion for botany and physics. He was also one of the first ecologists to warn that fossil fuels, fertilizers, and pesticides posed a significant threat to the global environment. Dr. Gates merged botany and physics in his studies of biophysical ecology.

He left the Garden in 1971 to return to the University of Michigan as a professor of botany and director of the biological station. He continued to support the Garden for many years after ending his tenure here. We honor Dr. Gates for his service to the Garden, his research and publications in the field of biophysical ecology, and for his work to inform leaders across the U.S. of threats to our environment.

green today
greener tomorrow

The Missouri Botanical Garden strives to make the most sustainable choices possible to benefit people, plants, and the planet. That's why we offer an interactive online version of the *Bulletin* as well as a downloadable PDF. Sign up by sending an email to membership@mobot.org. Let us know if you'd like to forego your paper subscription to save trees.

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JAPANESE FESTIVAL

Labor Day weekend
www.mobot.org/japanesefestival

Join or renew at the event and get in for free all weekend!

photo by Tom Incrocci

adventures with cocktails

Enjoy this adults-only party in the Doris I. Schnuck Children's Garden featuring local distillery tastings and specialty cocktails, food, games, a souvenir event cup, prizes, and live music. All attendees must be at least 21 years of age.

June 17 | 5:30–8 p.m.

$25 members | $35 nonmembers | $15 designated driver

All proceeds benefit the Children's Garden.



www.mobot.org/cocktails

Missouri Botanical Garden

calendar

www.mobot.org/events

june | july | august



Family Picnic
July 15



SENSATIONAL Summer Nights

garden-style happy hour

Thursday Evenings

June 2–September 1 | 5–8 p.m.

Garden admission applies | Free for members

Experience the beauty of the Garden during extended hours. Sip flora-inspired cocktails and savor delectable fare from the Botany Bar, engage with plants at sensational stations, and gather gardening tips from the experts.

www.mobot.org/events

Paper Kite Festival

at the Butterfly House



Sundays in August

Included with Butterfly House admission

www.butterflyhouse.org



Shaw Family Adventures

at Shaw Nature Reserve

Weekdays* | 9:30–11:30 a.m.

$7 members | $9 nonmembers

**check www.mobot.org/classes for specific dates*

Join us for an adventure and get hands-on with nature! Each Shaw Family Adventure class includes outdoor activities for your family to learn together about the plants, animals, and outdoor skills at the Nature Reserve. Price per child. One adult per child, please. For families with kids ages 3 to 10.

www.shawnature.org

june 2016

average temperature: low 66° | high 85°
average precipitation: 3.76 in.

What's in bloom?


Grass pink orchid


Foxglove


Ox-eye daisy

6/1	**Whitaker Music Festival** | The Feyza Eren Group | 7:30 p.m. | CA
6/2	**Sensational Summer Nights** | 5–8 p.m.
6/3–6/5	**Member 20% Sale at the shops** | GGS, BHGS, LS
6/4	**Green Homes Festival** | 9 a.m.–4 p.m.
6/7	✿ **Science:30** | Dr. Carmen Ulloa | 6:30 p.m. | ☎ SP
6/8	**Whitaker Music Festival** | The Steve Ewing Band | 7:30 p.m. | CA
6/8	**Firefly Festival** | 8–9:30 p.m. | ☎ $ BH
6/9	**Sensational Summer Nights** | 5–8 p.m.
6/12–6/18	**Illinois Appreciation Week** | 9 a.m.–5 p.m.
6/13	**Dr. Raven's 80th Birthday Celebration** | 9 a.m.–5 p.m.
6/14	**Discover Madagascar: Plant Detectives** | 6 p.m. ☎ ST
6/15	**Firefly Festival** | 8–9:30 p.m. | ☎ $ BH
6/15	**Discover Madagascar: World Exploration** | RVC
6/15	**Whitaker Music Festival** | Clusterpuck | 7:30 p.m. | CA
6/16	**Sensational Summer Nights** | 5–8 p.m.
6/16	**Discover Madagascar: Environment and Music** | Razia Said | 5:15 and 6:30 p.m.
6/16	**Discover Madagascar: Environment and Music** | Marie Hélène Kam Hyo Zschocke and Joey Moscovitch | 7:30 p.m. | ☎ ST
6/17	**Adventures with Cocktails** | 5:30–8 p.m. | ☎ $ CHD
6/21	✿ **Member Day: Setting up Your Garden Party** | 6–7 p.m. | ☎ ST
6/22	**Firefly Festival** | 8–9:30 p.m. | ☎ $ BH
6/22	**Whitaker Music Festival** | The Grooveliner | 7:30 p.m. | CA
6/23	**Sensational Summer Nights** | 5–8 p.m.
6/25–6/26	**Henry Shaw Cactus and Succulent Society Show and Sale** | 9 a.m.–5 p.m. | RVC
6/25–7/24	**Desert Exhibit** | 9 a.m.–5 p.m. | Linnean House
6/29	**Whitaker Music Festival** | Saint Louis Social Club | 7:30 p.m. | CA
6/30	**Sensational Summer Nights** | 5–8 p.m.

july 2016

average temperature: low 71° | high 90°
average precipitation: 3.9 in.

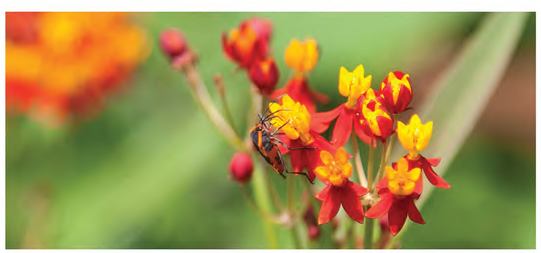
What's in bloom?


Lisianthus


Tetraploid daylily


Pearl millet

6/25–7/24	**Desert Exhibit** | 9 a.m.–5 p.m. | Linnean House
7/1–7/3	**Member 20% Sale at the shops** | GGS, BHGS, LS
7/2–7/3	**Independence Weekend Sale** | BHGS
7/6	**Whitaker Music Festival** | Jay Farrar | 7:30 p.m. | CA
7/7	**Sensational Summer Nights** | 5–8 p.m.
7/11	✿ **Member Night: Cactus and Succulents** | 5–7 p.m. | GGS
7/12	✿ **Member Day: Rain Gardening: Letting Mother Nature Water Your Garden** | 6–7 p.m. | ☎ ST
7/13	**Whitaker Music Festival** | Ptah Williams | 7:30 p.m. | CA
7/13–7/15	**Staff and Volunteer Sale** at the shops | GGS, BHGS, LS
7/14	**Sensational Summer Nights** | 5–8 p.m.
7/15	✿ **Member Event: Family Picnic** | 5:30–8:30 p.m. | ☎
7/19	✿ **Science:30** | Dr. Thomas Croat | 6:30 p.m. | ☎ SP
7/20	**Whitaker Music Festival** | Erin Bode | 7:30 p.m. | CA
7/21	**Sensational Summer Nights** | 5–8 p.m.
7/24	**Henry Shaw's Birthday** | 9 a.m.–5 p.m.
7/27	**Whitaker Music Festival** | The Cree Rider Family Band | 7:30 p.m. | CA
7/28	**Sensational Summer Nights** | 5–8 p.m.



august 2016

average temperature: low 69° | high 88°
average precipitation: 2.98 in.

What's in bloom?


Swamp milkweed


Hardy water lily


Black-eyed Susan

8/1–8/7	**Educator Appreciation Week**
8/1	✿ **Member Day: Paper Kite Festival** | 5:30–7:30 p.m. | ☎ BH
8/2	✿ **Member Day: Preserving Your Harvest** | 6–7 p.m. | ☎ ST
8/3	**Whitaker Music Festival** | Joe Mancuso | 7:30 p.m. | CA
8/4	**Sensational Summer Nights** | 5–8 p.m.
8/5–8/7	**Member 20% Sale at the shops** | GGS, BHGS, LS
8/6–8/7	**Greater St. Louis Iris Society Show and Sale** | 9 a.m.–5 p.m. | RVC
8/7	**Paper Kite Festival** | 10 a.m.–3 p.m. | BH
8/9	✿ **Science:30** | Dr. Pete Lowry | 6:30 p.m. | ☎ SP
8/11	**Sensational Summer Nights** | 5–8 p.m.
8/14	**Garden Gallop** | 7–9 a.m. | ☎ $
8/14	**Paper Kite Festival** | 10 a.m.–3 p.m. | BH
8/18	**Sensational Summer Nights** | 5–8 p.m.
8/20	**Missouri Botanical Garden Daylily Association Show and Sale** | 9 a.m.–5 p.m. | RVC
8/21	**Paper Kite Festival** | 10 a.m.–3 p.m. | BH
8/25	**Sensational Summer Nights** | 5–8 p.m.
8/28	**Paper Kite Festival** | 10 a.m.–3 p.m. | BH



your garden



When and how should I divide my perennials?

Late July through September is the preferred time to lift and divide many perennial flowers. This includes spring and early summer blooming perennials such as iris, peonies, hostas, bleeding hearts, and coral bells. This will give them a chance to develop a good root system before cold weather sets in. Given proper care, they should also bloom the following spring, but some will take two years to bloom well.

To dig, use a sharp garden spade to lift your perennials. Dig several inches out from the outermost stems and lift the clump out of the ground. Using an old, large knife, cut the clumps into sections. Another method is to use two digging forks and pry the clump apart.

When replanting peonies, work a bucket full of compost into the soil in the planting hole and plant each clump about 18" apart. Each clump should have three to four eyes, and the eyes should be no more than one to two inches below the soil. Peonies do not need dividing on a regular basis.

Bearded iris should be divided every three to four years. Divide the clumps, keeping only the young, healthiest rhizomes. Discard the old rhizomes in the center of the clump. Dust any cut part of the rhizome with sulfur powder and replant. Spread the roots out and make sure the rhizomes are slightly above ground. Do not cover them completely with soil. Hostas, bleeding hearts, and coral bells may also be propagated at this time. Cut the clumps into two to four clumps, depending upon size, and replant at the same depth in well-prepared planting holes that have had ample compost or peat moss added.

More advice and tips at www.mobot.org/gardeninghelp.

Plant Societies' Shows and Sales

Get the latest information about your favorite plant society's show and sale by visiting www.mobot.org/plantsocieties.

Key *(All events take place at the Garden unless otherwise noted.)*

BH	Butterfly House
BHGS	Butterfly House Gift Shop
CA	Cohen Amphitheater
CBEC	Commerce Bank Center for Science Education
CHD	Children's Garden
CL	Climatron lawn
GGS	Garden Gate Shop
JE	Jordan Education Wing (in RVC)
KC	Kemper Center for Home Gardening
LS	Little Shop Around The Corner
MC	Monsanto Research Center
MH	Monsanto Hall (in RVC)
RVC	Ridgway Visitor Center
SNR	Shaw Nature Reserve
SP	Spink Pavilion
ST	Shoenberg Theater (in RVC)

Sassafras
✿ Members-only event
20% Member discount at the shops
☎ Reservations required
$ Fee required

photos by (front) Josh Nezam, Molly Krohe, Kat Niehaus, and Lisa DeLorenzo Hager. (this page) Lisa Francis, Rebecca Hensiek, Ryan Lay, and Leslie Patrice

bulletin

Missouri Botanical Garden

Fall 2016
Vol. 104, No. 4
www.mobot.org

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Thank you! Your membership provides critical support for our international and local plant science and conservation work, and Garden memberships contribute 20% of our annual operating funds.
To learn more about the benefits of your membership, visit www.mobot.org/membership, email membership@mobot.org, or call (314) 577-5118.

hours and admission
For hours and admission prices at our three locations, visit www.mobot.org, www.butterflyhouse.org, and www.shawnature.org.

contact
Missouri Botanical Garden
4344 Shaw Blvd.
St. Louis, MO 63110
(314) 577-5100 • www.mobot.org

on the cover
Shaw Nature Reserve's prairie (on former farmland or pasture) represents a once-vast, nearly treeless ecosystem, of which less than 1% of the original remains intact. Photo by JJ Mueller.

credits
Editor/Designer: Andrea Androuais

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To discover and share knowledge about plants and their environment in order to preserve and enrich life.

mission of the
Missouri Botanical Garden

photos by Chris Birkinshaw and Monique Mullen

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photo by Koraley Northen

from the president



Understanding our history is both fascinating and valuable to help guide our present and future. It is also critical to our global conservation efforts. To build a more sustainable, secure, and verdant future, we must first understand—and come to terms with—our history, especially our interactions with the natural world that provides for us. Today, we face great challenges: poverty, climate change, inequality, and biodiversity loss to name a few. However, we are also at a critical point where we can acknowledge, understand, and promote the importance of plants for global sustainability (see page 6). We can also support the recovery of the ecosystems that provide us with the goods and services we need for life—from clean water and air to food and shelter (see page 10).

Looking back in time also allows us to celebrate the places and events that have become traditions for many of us. This year, we're thrilled to be celebrating the 25th anniversary of the Best of Missouri Market and the 40th anniversary of the Japanese Festival (see page 14). To all of you who have made these signature events possible through the years and to those of you who have attended, thank you!

We're also looking forward to the biennial Prairie Day at Shaw Nature Reserve, which allows you to step back in time and learn more about Missouri's cultural and natural heritage (see page 8). We're excited to offer you more opportunities to enjoy the Garden, the Nature Reserve, and the Sophia M. Sachs Butterfly House and to be a part of so many of your lives.

It is also important to reflect on the Garden's history, its important place in the world today, and our role in the future. In his will, founder Henry Shaw left a bequest to establish and support the Garden, creating a legacy that has become a world-leading botanical institution. Since then, many have followed his example and created legacy gifts (see page 16). On behalf of the Garden, I'd like to thank the members of our Heritage Society, whose vital support helps sustain the Garden's mission into the future, for our own region and for the world.



Dr. Peter Wyse Jackson, *President*

what's new?



Corpse Flowers Bloom Again

This summer, the Garden witnessed the blooming of two titan arum plants (*Amorphophallus titanum*), also known as "corpse flowers." They were the sixth and seventh such occurrences since 2012. "Jack" bloomed July 16, and it had unfurled once in October 2013. "Izzy" bloomed August 13; its two previous blooms happened in 2012 and 2014. Visitors were able to witness (and smell!) these specimens during special late-night viewing opportunities, when the characteristic rotting smell is usually at its peak. For more information on this fascinating plant, please visit www.mobot.org/titanarum.

sassafras

This summer, the Green Dining Alliance, a restaurant sustainability certification program, recertified Sassafras as a 4-star member, recognizing the café's efforts to embrace enhanced sustainable practices such as water and energy conservation; sourcing local foods; recycling and waste reduction; and educating visitors.



Teens plant sweet potatoes and sunflowers during the joint event.

Programs Come Together for Teens

This summer, the Sweet Potato Project and the Garden's Sunflower+ Project STL joined forces to plant on the lot next to Union Avenue Christian Church in the Central West End. Through the Sweet Potato Project, teens are employed to plant sweet potatoes on vacant lots. They also learn about horticulture, financial literacy, product development, and marketing. The Garden's Richard Reilly, who launched Sunflower+ Project in 2013, saw an opportunity for the teens to also harvest the flowers to sell them as ornamentals and harvest the seeds this fall to sell and to replant.



Restoration Ecologist at Nature Reserve

Shaw Nature Reserve welcomed Mike Saxton in April as the new Ecological Restoration Specialist. He previously worked for The Nature Conservancy in the Nachusa Grasslands, outside Chicago. With an undergraduate degree in History, a minor in Philosophy, and a Master of Science in Biological Geography, Saxton's background allows him to approach problems, especially those in degraded or transformed ecosystems, with a different perspective. "Ecological restoration is all about dealing with human choices of the past," he says. "It's important to understand the history of the changes."



Vice President in UN Committee

Vice President of Education Sheila Voss has been invited to serve on the United Nations Convention on Biological Diversity's Informal Advisory Committee on Communication, Education, and Public Awareness. This August she attended a committee workshop in Montreal, Canada, along with representatives from more than 15 countries and organizations. The workshop brought together environmental science and communications professionals from around the world to share insights on how effective biodiversity messaging can propel and advance biodiversity conservation.

photos by Sundos Schneider, Richard Reilly, Phoebe Mussman, and Maddy Gordon



In Memoriam Jack C. Taylor

The Garden community mourns the loss of Jack C. Taylor, a veteran, businessman, and philanthropist who gave generously of his time, talent, and treasure to the benefit of all. Mr. Taylor passed away in July at the age of 94.

Mr. Taylor sold cars in St. Louis after serving as a fighter pilot during World War II. He transitioned into the leasing industry in the 1950s, growing his business into today's family-owned Enterprise Holdings.

Mr. Taylor's relationship with the Garden spanned more than 40 years. His generous contributions have greatly advanced the Garden's mission. Most recently, his significant gift to the *Garden for the World* campaign will allow the Garden to complete work on three capital projects by the end of 2017.

It is difficult to adequately express our gratitude for all he has done for the Garden and St. Louis. We will miss him very much.



Teachers toured the Garden as part of the three-day early childhood educator summit.

Garden Welcomes Educators

The Garden hosted two workshops this summer for local teachers. The Climate Science and Stewardship workshop, in partnership with Saint Louis University, convened 75 educators of grades 4–12 to deepen understanding of climate science and demonstrate how plant science and stewardship projects can address climate change.

For early childhood educators, the Garden convened the 2016 Early Childhood Nature Summit, part of the *Sprouting Science* program supported by The Boeing Company. Involving 40 educators, many from Head Start centers and St. Louis Public Schools, the summit focused on transforming schools and communities into living classrooms and places for nature-rich learning and discovery.



Construction Underway

Work is progressing on the new Oertli Family Hardy Plant Nursery a few blocks from the main Garden grounds. Demolition of existing structures is complete, with cleanup in progress. Next steps will include grading the land and laying infrastructure for new buildings and pathways.

The Garden is pleased to be able to use a greenhouse structure previously donated by Ahners Nursery as part of the greenhouse complex. The donated greenhouse will be reconstructed into two houses for cuttings and seed propagation. The bulk of the space will be dedicated to pot production, allowing plants to mature before transferring to the outdoor nursery space.

For continued updates, visit www.mobot.org/hardyplantnursery.



Introducing Becky Patel

New Young Friends Council Chair 2016–2017

More information at www.mobot.org/youngfriends.



Garden Hosts Career Summit for Teens

As part of the St. Louis Youth Conservation Corps, the Garden hosted 50 teens in July for a day of team-building activities and meeting professionals in fields related to conservation, education, research, and community leadership.

photos by Elizabeth Harris, Phoebe Mussman, Derek Lyle, and courtesy of the Taylor family

did you know?

Garden Curator Assisting New National Park



Gereau presses rattan palm (*Eremospatha laurentii*) collected during the inventory project.

In 2015, Assistant Curator Roy Gereau joined colleagues from the Botanic Garden Meise in Belgium, the Wildlife Conservation Society (WCS), and the Lukuru Foundation to inventory biodiversity in the east central part of the Democratic Republic of the Congo (DRC) in an effort to support the establishment of a national park. This summer, DRC Prime Minister Augustin Matata Ponyo officially established the Lomami National Park, the first since 1970 and only the eighth in the country. It covers 3,426 sq. mi. (99% the size of Yellowstone) of nearly unexplored tropical forest and grassland. "This is a real win for conservation when a wildlife conservation foundation can partner with a botanical garden to demonstrate that both the animals and plants are important and special and convince the Congolese government that a huge conservation site is deserving of long-term protection," says Dr. James Miller, Senior Vice President of Science and Conservation.

During the inventory project, Gereau was joined by the WCS's Corneille Ewango, who received his master's degree at the University of Missouri–St. Louis in 2006 and is a research associate at the Garden.

Garden Leads Conservation Efforts

This summer, the Garden hosted an international conference of the Global Partnership for Plant Conservation. Themed "Plant Conservation and the Sustainable Development Goals," the event gathered nearly 150 participants from 27 countries to discuss the importance of plants for global sustainability and the role they can play in achieving the United Nations' (UN) Sustainable Development Agenda by 2030. "Individually our efforts are important wherever we work, but collectively they will amount to a world-changing initiative. The successes we achieve together will ensure that plant life survives and thrives to sustain ourselves and our future," says Garden President Dr. Peter Wyse Jackson. The results of the conference will be presented to a meeting of the UN Convention on Biological Diversity in Mexico this December.

Among the outcomes of the conference are two agreements between the Garden and representatives from Haiti and Indonesia. In Haiti, this will involve renewed cooperation toward the development of a National Botanic Garden. For Indonesia, the Indonesian Botanic Gardens and the Garden will cooperate on new research and conservation activities on the Indonesian native flora.

Garden Expands Its Collaboration with Key Partners in Africa



The Garden has two new collaboration agreements with partners in Gabon and Mauritius. In Gabon, the Garden will work on *in situ* and *ex situ* conservation with the National Association for National Parks (ANPN), including leading the flora component of biodiversity studies in the 14 protected areas managed by ANPN. Tariq Stévart, coordinator of the Garden's program in Central Africa, will lead a biodiversity study of the Bas Ogooué wetlands, one of the largest and best-preserved wetland areas in all of Africa.

The Garden will also work with the Government of the Republic of Mauritius and the Mauritian Wildlife Foundation to conduct botanical research, conservation, and education. Mauritius has the world's third most threatened flora, so one of the top priorities will be to prevent species extinction, particularly of the 89 taxa with fewer than 10 individuals still alive and the 19 taxa with fewer than 5. The Garden's work in Mauritius is supported by Marion and Van-Lear Black, the St. Louis Herb Society, the St. Louis Master Gardeners, and David Orthwein.

photo courtesy of Roy Gereau





Prescribed burning used at Shaw Nature Reserve | Firebreaks built in Madagascar to protect forest

Fire's Impact on Plants

Prescribed burning is an attempt to replicate the natural phenomenon of landscape-scale fire. In Missouri, the history of fire has been reconstructed from a variety of sources—from diaries of native peoples and early settlers to charcoal and other remnants of past fires found in the fossil record. "Fire is an effective and efficient way to manage the land," says Mike Saxton, Ecological Restoration Specialist at Shaw Nature Reserve. "It is a risky thing, but you manage that risk with the proper training and equipment." At the Nature Reserve, prescribed burning is most commonly used in prairies, but it is also used in other ecosystems such as woodlands and glades.

In Madagascar, fire is a constant threat to forests, particularly those already degraded. It is, however, still considered a useful tool for the local farmers, who depend on it to prepare the farmlands and control weeds and rats. To address this fine balance, Garden staff work closely with the communities who live in and around the Garden's natural protected areas. "The use of fire is not forbidden, but our agreement is that the farmers have to help build their own firebreaks to make sure the fire doesn't go beyond their farmland," says Reza Ludovic, Project Manager at the Garden's Agnalazaha Forest. Ludovic and his team are also experimenting with pioneer plants—hardy species that first colonize a damaged ecosystem—to restore burnt land into forest.

Recent Grants and Recognitions

$306,438 *Ex situ* conservation of threatened plants from the Ivoloina-Ifontsy valleys, Madagascar
Darwin Initiative

Curator Dr. Carmen Ulloa was inducted into the Academy of Sciences of Ecuador in July. She is one of 50 current members of the Academy.

Curator Dr. Peter Stevens received the American Society of Plant Taxonomists (ASPT) Asa Gray Award in early August. It is the ASPT's highest honor given to a botanist for career achievements.

photos by Brian Mueller, Tefy Andriamihajarivo, and Elizabeth Harris



Fire and Conservation

Dr. Matthew Albrecht, Conservation Biologist

Dr. Matthew Albrecht works with some of the most endangered plant species in the United States. Since he joined the Garden in 2007, his research at its Center for Conservation and Sustainable Development (CCSD) has been focused on rare plant population dynamics and genetics, conservation seed science, population reintroduction, and climate change vulnerability.

In 2010, Dr. Albrecht began a long-term study in partnership with the Tennessee Department of Environment and Conservation and the U.S. Fish and Wildlife Service to study the federally endangered Pyne's ground plum (*Astragalus bibullatus*). Known from only six sites in Tennessee, it is one of 21 plant species endemic to limestone cedar glades.

His latest work with this species is focused on the ecology of fire in glades. "Glades are fire-dependent," he says, "but while fire has been successfully used to manage Missouri's Ozark glades, it has rarely been used in Tennessee glades." Last year, he and Dr. Quinn Long, botanist and ecologist at CCSD, began a multi-year experiment at Shaw Nature Reserve's glades. Setting up plots with specially built enclosures to contain fire, they are using controlled burning at different times of the year to determine the best season to reintroduce fire into Tennessee glades. The results will inform the best approach to restore that ecosystem and reintroduce this endangered species back into the wild.

what can you do?

Come Grow with Us!

The Missouri Botanical Garden, Sophia M. Sachs Butterfly House, and Shaw Nature Reserve are more than just beautiful destinations. They are living classrooms that connect people of all ages to the wonderful world of plants—from cooking, painting, and photography courses to green living, outdoor exploring, and, of course, gardening classes.

Registration for the fall/winter session is now open, and there is something for everyone. Now is the perfect time to learn a new skill, discover a new passion, or reconnect with the natural world in a whole new way.

To learn more, look for your course catalog in the mail or visit www.mobot.org/classes.



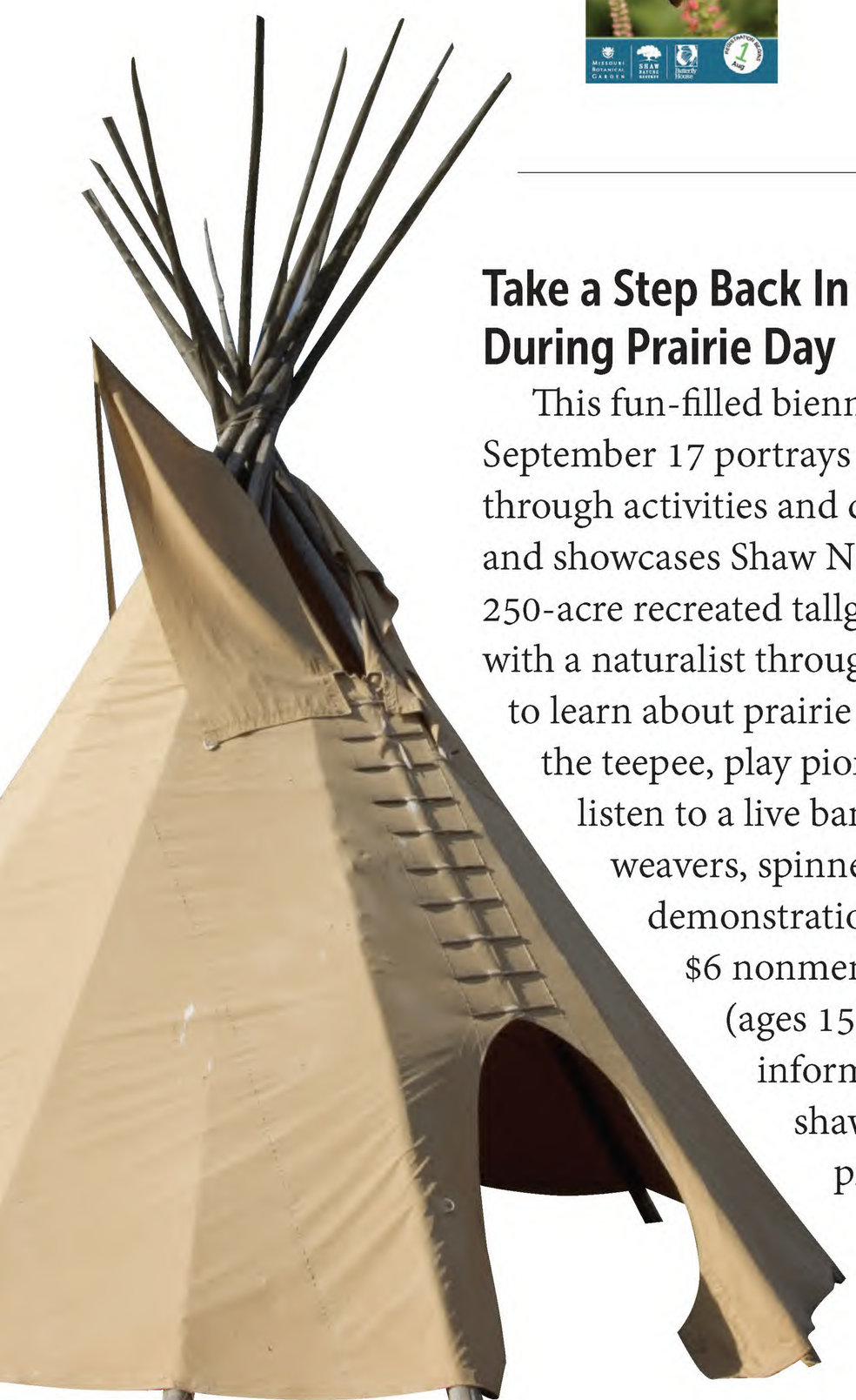




Visit the Garden Gate Shop's New Outdoor Space

Next time you visit the Garden, be sure to check out the new Patio Shop, accessible both through the Garden Gate Shop or through the east parking lot.

The new shopping space, which opened in early August, features outdoor plants, most of which match what you see out on grounds in the display beds. The Garden Gate Shop is working closely with the Horticulture team to coordinate their offerings each season. Visit today!



Take a Step Back In Time During Prairie Day

This fun-filled biennial event on September 17 portrays prairie heritage through activities and demonstrations, and showcases Shaw Nature Reserve's 250-acre recreated tallgrass prairie. Hike with a naturalist through the prairie to learn about prairie life, check out the teepee, play pioneer games, listen to a live band, and watch weavers, spinners, and other craft demonstrations. $3 members; $6 nonmembers; $2 children (ages 15 and under). More information at www.shawnature.org/prairieday.

Learn about the Power of Plants

If you're a social worker, therapist, psychiatrist, special education teacher, or child life specialist, you may be interested in learning more about the Garden's Therapeutic Horticulture program and how plants and plant-based activities are used to improve the body, mind, and spirit, through passive or active involvement. In addition to its specialized programs, this year the Garden also is proud to host the American Horticultural Therapy Association Annual Conference September 16–17. To learn more about the Garden's program and about this year's conference, please visit www.mobot.org/horttherapy.

photos by Nathan Wagner, Tom Incrocci, Sheridan Hentrich, Elizabeth Harris, and Jill Setlich



Get Rewarded for Your Purchases

Starting September 1, stop by the Garden Gate Shop to pick up a valuable rewards card exclusively for members. For every $25 you spend, you get a punch. Get 10 punches, and you can select a free item of your choice under $40 and be entered into a drawing to win even more! For more information, contact the Membership Office at (314) 577-5118 or membership@mobot.org.



Get Rid of Bush Honeysuckle

Bush honeysuckle (*Lonicera maackii)* is an invasive plant species that degrades natural areas. Join the Honeysuckle Sweep for Healthy Habitat event October 29 to November 6 and help with the removal efforts around St. Louis. Details at www.biodiversecitystl.org.

To learn more about invasives, landscaping alternatives, and control methods, visit www.mobot.org/invasives.

Calling All Glow Volunteers!

If you're volunteering for Garden Glow this year, we invite you to attend one of the training sessions this November.

November 2	10 a.m.–noon and 1–3 p.m.
November 4	10 a.m.–noon
November 5	10 a.m.–noon
November 9	6–8 p.m.

To sign up for a training session, visit www.mobot.org/volunteer or contact Scott Bahan at scott.bahan@mobot.org or Michele Blanke at michele.blanke@mobot.org.

photos by Heather Marie Osborn



Join Us for the Seasonal Closing of the Children's Garden

Join us October 29–30 from 9 a.m. to 3 p.m. as we put the Doris I. Schnuck Children's Garden to bed. Enjoy two festive fun-filled days of hands-on activities celebrating the changing of the seasons. See what's ready to harvest in the edible garden, pot an edible plant to take home, enjoy live music, meet World Bird Sanctuary experts, and meet our mascot Finn. Information at www.mobot.org/finn.



Come Celebrate All Things Creepy and Crawly

Inviting families of all ages! Creep on over to the Butterfly House every day in October from 10 a.m. to 3 p.m. (closed Mondays). Meet new frightful friends in the Scorpion's Lair, watch out for our Botanicals Gone Mad in the Conservatory, and spy on spectacular spiders with Little Miss Muffet. Don't forget to look out for pop-up sales throughout the month in the Butterfly House Gift Shop featuring costumes for your trick-or-treaters and fall décor. Visit www.butterflyhouse.org for a complete schedule of daily events. Included with admission.



Get Ready for Garden Glow

The fourth annual Garden Glow, presented by Wells Fargo Advisors, returns November 19 to January 1, 2017. For admission times and prices, visit www.mobot.org/glow.

Members see it first November 18 (see page 18). Festival- and Contributor-level members, see page 15 for details on your complimentary tickets.

eco



healthy ecosystem

‹ an ecosystem through time

Ecosystems are in constant flux. However, in the last 200 years human pressures have drastically increased. As a result, more than half of all ecosystems have been dramatically transformed, damaged, impaired, or outright destroyed. Through time, a healthy ecosystem becomes damaged to a point where it can no longer sustain itself.

Ecological restoration can play an important role in repairing this damage. Through careful study of an ecosystem's history, the degradation that occurred, and possible solutions, ecological restoration scientists aim to resume the natural processes that will lead the ecosystem on a path back to health.



key

An **ecosystem** consists of the plants, animals, and microorganisms within a given area, the environment that sustains it, and the interactions among themselves.

A **landscape** consists of a mosaic of two or more ecosystems that exchange organisms, energy, water, and nutrients among themselves.

The **socio-economic matrix** is the human cultural context in which landscapes and ecosystems are embedded.

The **ecosystem goods and services** are the benefits to all living organisms—from carbon sequestration and erosion control to water purification and cultural value.

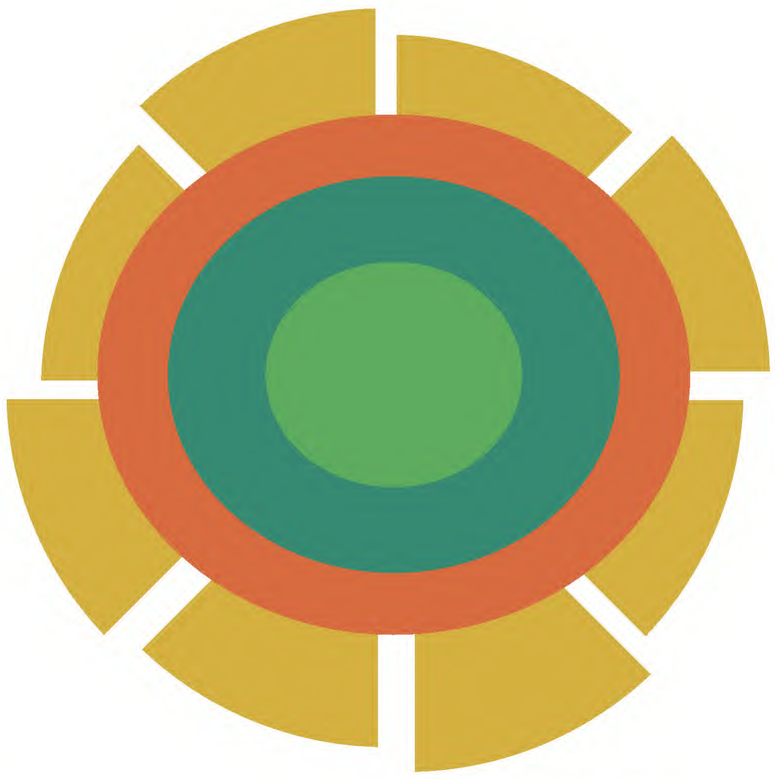
sources: Dr. James Aronson, Missouri Botanical Garden; Dr. Leighton Reid, Missouri Botanical Garden; Society for Ecological Restoration International Science & Policy Working Group, 2004, The SER International Primer on Ecological Restoration, www.ser.org; World Forum on Natural Capital, www.naturalcapitalforum.com.

restoration

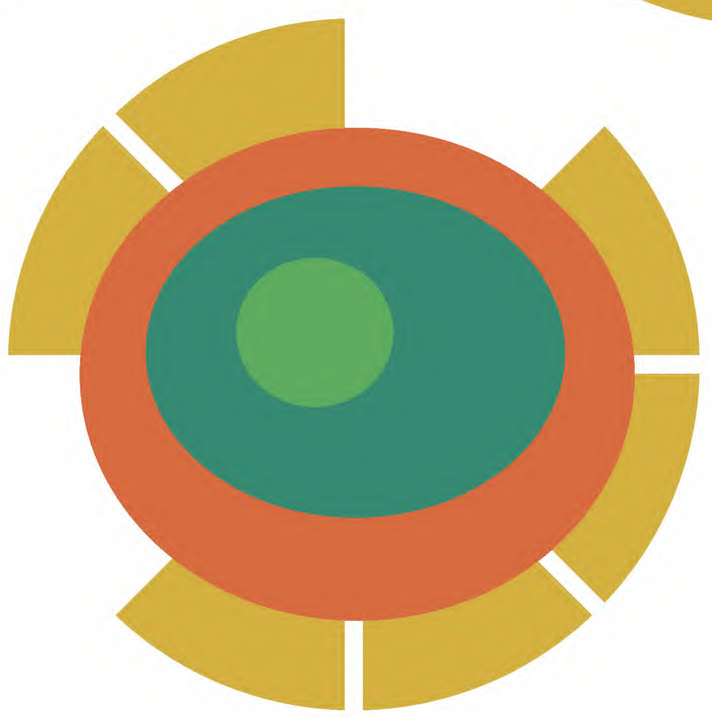
For thousands of years, humans have been transforming ecosystems, mainly using goods and services such as food, clean water, and material for shelter. These practices, however, cannot be sustained any longer. Ecosystems that have provided our most basic needs have been damaged, transformed, or completely destroyed as a result of human activity.

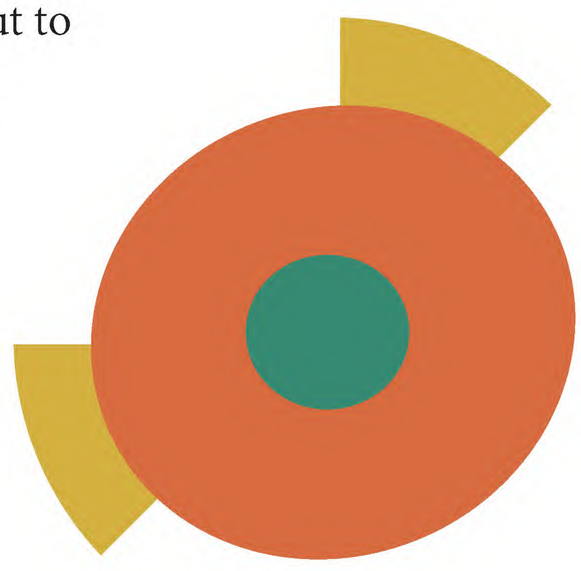
At the Missouri Botanical Garden, restoring threatened ecosystems is a top priority and one of many ways to protect Earth's biodiversity. Few organizations around the world have the knowledge and experience in plant discovery, horticulture, genetics, conservation biology, ethnobotany, and ecological restoration needed to tackle this challenge.

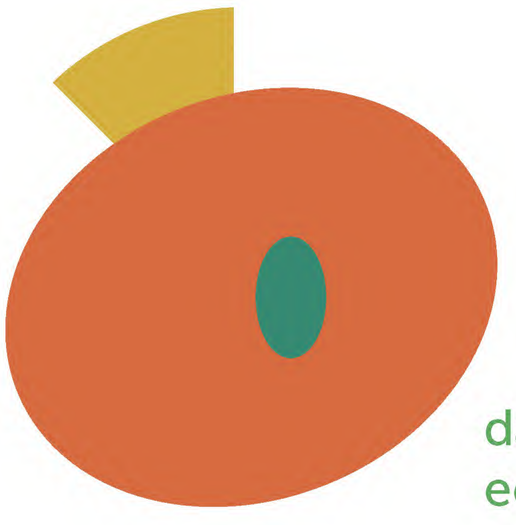
With 6.7 million specimens in the Herbarium; the world's largest botanical database, TROPICOS; and expert staff in botany, the Garden is exceptionally positioned to lead the efforts to restore ecosystems around the world. "Applying the Garden's unique knowledge and experience in the expanding field of ecological restoration gives us important and new opportunities to extend our impact on plant conservation," says Garden President Dr. Peter Wyse Jackson. "Our future human well-being will increasingly depend on our ability not just to protect biodiversity but to restore many natural habitats on which we rely."



recovering ecosystem







damaged ecosystem

Walk like the chameleon: with one eye looking forward and the other one looking back.

Malagasy proverb

Reconnecting with the Past

Ecological restoration aims to repair damage and return an ecosystem to its trajectory before its health started to degrade. Today's constraints and conditions—climate change, agricultural needs, growing population—mean the result will not be an exact replica of the historically based "reference." Instead, the goal is to help the damaged ecosystem to recover autonomy and resilience so that it can be self-sustaining and adaptable once again.

Ecological restoration is ecosystem-specific and site-specific. Garden botanists and ecologists have expert knowledge of the native flora of many regions around the world. This includes knowledge of the different species that live in an ecosystem as well as the traditional knowledge of local communities who are familiar with the site before it was damaged or altered.

Horticulturists play an important role in restoring ecosystems. The Garden's living collections—plants and seeds—provide the necessary tools to understand and develop propagation techniques for wild plants. This information is crucial to identify the species that can be used effectively in a restoration project. Threatened or rare plant species are also protected on Garden grounds or field sites ("*ex situ* conservation"). The living collections also provide important opportunities to share information about plant conservation with visitors.

At the Garden's Center for Conservation and Sustainable Development (CCSD), scientists conduct ecological research to restore and recover ecosystems around the world—from the glades in Tennessee to the rainforests in Costa Rica. Using the Garden's resources and tools (see "toolbox"), CCSD's ecologists, botanists, and geneticists focus on developing real-world solutions to restore degraded ecosystems. These can range from conducting invasive species control and seed banking endangered species to doing propagation trials and using genetic data to understand the ecology and biology of endangered species.

Natural Capital

Investors know the importance of building capital, and the same can be said about nature. While humans have been transforming ecosystems for thousands of years, it wasn't until the 1970s that the idea of "natural capital" came to be. This economic metaphor for physical and biological natural resources highlights the need to show how we benefit from conserving biodiversity and restoring ecosystems. "The time has come for a unified effort to solve holistically the inextricable problems of people, the rest of Nature, and our mutually interdependent economic systems," says Dr. James Aronson, CCSD scientist. "We need to move forward with a new paradigm: ecology as if people mattered; economics as if nature mattered."

> **It is time to recognize that human capital and natural capital are every bit as important as financial capital.**
>
> **Ban Ki-moon**
> **Secretary General, UN**

Returning an ecosystem to health is an important component of both biodiversity conservation and sustainable development. As illustrated by this summer's Global Partnership for Plant Conservation conference (see page 6), plants can play an important role in achieving the new United Nations' (UN) Sustainable Development Agenda to end poverty, fight inequality and injustice, and tackle climate change by 2030. "Biodiversity and sustainable development are closely linked," says Dr. Aronson. "Ultimately, we must decide if we want to live in a 'planet in repair,' or one that is in decline."

toolbox

Restoration ecology provides the concepts, models, methodologies, and tools for practitioners. Ecological restoration puts these tools in practice. At the Garden, scientists in a variety of fields are collaborating on ecological restoration projects locally, regionally, and globally. Here is a snapshot of some of the "tools" the Garden uses to restore ecosystems. To learn more, visit www.mobot.org/ecologicalrestoration.



Plant Discovery

Basic knowledge about plants, such as their classification, name, and native habitat, is key in the development of ecological restoration projects. This information is useful when choosing the plant species that will work best to achieve a restoration project's goal, whether it's attracting seed-dispersing animals or building up the canopy to promote understory growth. As a world leader in discovering, describing, and classifying plants, the Garden is home to botanists who are called upon for their expertise to identify conservation priorities and develop tools such as the International Union for Conservation of Nature (IUCN) Red List of Threatened Species™, which is used to identify endangered species and to develop the necessary conservation and recovery plans.

Fire Management

Fire can be a useful tool to restore ecosystems, but it can also pose a serious threat where there hasn't been a natural history of fire. Managing its use is very important. At Shaw Nature Reserve, prescribed burning is used in prairies, woodlands, and glades (see page 7). Prescribed fire, as opposed to wildfires, helps kill invasive plants while increasing shoot production, flowering, and fruit-set in native perennials, and improving seeds' germination success.

In Madagascar, where the Garden has been actively protecting and restoring fragile ecosystems for decades, fire is an ever-present threat. Considered a useful tool to prepare farmland and control weeds and rats, fire can quickly cause serious damage when not managed properly. To prevent this, Garden staff work closely with farmers around the protected natural areas the Garden manages, building firebreaks around the forests and establishing a *dina*, or a set of rules and agreements with sanctions for breaking them.

Invasive Species Control

Invasive plant species spread aggressively and cause major environmental changes such as the elimination of native plant populations, which is detrimental for insects and pollinators that depend upon these native plants. Garden staff have a wealth of knowledge to identify invasives, understand their negative impact on an ecosystem, effectively remove them, and replace them with native species. That knowledge is also shared with the community so everyone can play a role in keeping invasives in check—from backyard gardens to tropical forests (see page 9).

Seed Banking

Seed samples collected and stored in a seed bank can ensure long-term genetic conservation for research, restoration, and recovery. Seed banks are long-term storage facilities designed to keep seed viable for years and even decades. The Garden has been seed banking for more than 30 years, and the Missouri Botanical Garden Seed Bank was created in 2013. Ideally, plants should be conserved in their natural habitats (or "*in situ* conservation"). However, maintaining wild plant populations may not be possible due to threats such as habitat fragmentation or destruction, range shifts due to climate change, or pollinator loss. Seed banking is therefore a useful conservation and restoration tool.

Growing Plants

Without horticulturists, plants targeted for conservation can't be cultivated, propagated, or reintroduced to their natural habitat. At the Garden, horticulturists work with rare and endangered plants that have been collected in the wild to add to the living collections. Not all plants will survive propagation trials, but horticulturists record as much as possible about their process—what works and what doesn't—for future use. When plants are collected in the field, large amounts of data (GPS coordinates, environmental conditions, growth habit) are stored in the Garden's unique Living Collections Management System. When producing propagation protocols, information such germination treatment, soil type, and growing environment are recorded. This data then informs future propagation and restoration efforts.

Genetics

Using genetic data to understand the ecology and reproductive biology of endangered plants can help conservation and restoration efforts, including guiding reintroduction efforts to ensure high genetic diversity. The Garden's conservation genetics program aims to understand the evolutionary and ecological causes and consequences of rarity in endangered plant species. It focuses on rare, reintroduced, and restored plant populations. It also looks at patterns of evolutionary history in closely related species complexes containing endangered species, to study the relationships between geographic range size and levels of genetic diversity, and to understand the potential for adaptive evolution and how traits are affected by environmental stress or variation in plant populations.

photos by George Schatz, Dan Brown, Karen Fletcher, Megan Engelhardt, Monique Mullen, and Burgund Bassüner

celebrating

TRADITION

signature festivals commemorate milestone anniversaries







japanese festival



best of missouri market









Trendsetter

Long before farmers' markets became popular, the Best of Missouri Market existed at the Garden. The brainchild of long-time Garden volunteers Nora Stern and Ellen Dubinsky, the Market is celebrating 25 years of offering Missouri's finest artisan food and crafts to thousands of visitors each fall.

The Market began with just over 50 vendors from across the state occupying two tents in the area that's now the William T. Kemper Center for Home Gardening. Both Stern and Dubinsky previously served as president of the Garden's Members' Board. They were instrumental in bringing in a variety of vendors, establishing relationships with them, and building the event's reputation to make it the signature event it is today. "We always knew that we wanted to keep making the Market better each year," says Stern. "It's been truly something that we love and a big part of our lives."

The event has grown through time—adding a food court, live music, and a kids' corner. The number of visitors who make the Market part of their family's traditions has also grown. For many, fall doesn't begin until the Best of Missouri Market weekend. "We know children who are now graduating from college who painted their first pumpkin at the Market years ago," says Dubinsky. "It really has become a great family event."

Today, the two-day event and preview night attract an average of 25,000 visitors of all ages. More than 120 vendors, some of whom were here back in the 1990s, offer a wide variety of products—from pickles and cheese to ceramics and jewelry. "Through the years, both the vendors and the public are always overwhelmingly excited to be a part of the Market," says Chelsea Harris, Senior Events Coordinator. "We bring new vendors every year and try to think of new ways to give our visitors a top shopping experience."

Deep Roots

St. Louis has been home to a Japanese Festival for more than half a century. Early festivals were held in church basements and parking lots. The first Japanese Festival at the Garden was held in 1976, a year before the Japanese Garden, or *Seiwa-en*, opened to the public. Thanks to the Japanese Activities Committee of the Japan America Society of St. Louis and the almost 2,000 participants who make it possible, the Japanese Festival has become a St. Louis tradition. "This anniversary provides an opportunity to reflect on the enormous contributions of the Japanese and Japanese-Americans who did so much to create *Seiwa-en* and the Japanese Festival and to commit ourselves to continuing in their spirit," says Dave Lowry, Chairman of the Committee.

The festival, originally sponsored by the Japanese American Citizens League in cooperation with the St. Louis–Suwa Sister City Committee, was designed to create a greater awareness of Japanese and Japanese-American cultural heritages. Through the years, the different programs have featured everything from the traditional—kimono show and aikido demonstration—to the modern—anime show and cosplay fashion show. What started as a small celebration with local focus has evolved into the largest Japanese Festival in the United States.

festival SEASON has arrived!

join us!

Enjoy Japanese Festival this Labor Day weekend and the Best of Missouri Market September 30–October 2! More info at www.mobot.org/events.

Members at the new Festival level and above enjoy free admission to all Garden festivals—including Japanese Festival and Best of Missouri Market—and up to six complimentary tickets to Garden Glow. To renew or upgrade to the Festival level, call (314) 577-5118, stop by the Member Services Desk, or visit www.mobot.org/membership.

Garden Glow Ticketing for Members

Individual through Family & Friends levels receive discounted tickets. Purchase your advance tickets online* or on-site starting September 15 or by phone* at (314) 678-7442 starting October 17.

Festival and Contributor levels may reserve complimentary tickets starting October 17 by phone or through our online request form at www.mobot.org/glow. Upgrade or renew at these levels at the Garden and reserve your tickets at the same time. Complimentary tickets are subject to availability, and advance tickets are highly recommended. Please request tickets at least 48 hours in advance.

**service fee applies*



photos by Sheridan Hentrich, Heather Marie Osborn, Mary Lou Olson, Todd Gilbert, Josh Nezam, Lisa De Lorenzo Hager, and Kent Burgess



create a LEGACY

Heritage Society members secure the Garden's future

Henry Shaw created the Missouri Botanical Garden on the grounds of his country estate in his adopted hometown of St. Louis, opening the doors in 1859.

Shaw's generosity did not stop there. He also left the first bequest to support the Garden in his will in 1889. Since then, hundreds of incredible philanthropists have joined his effort by creating their own legacy gifts through their will or other arrangements. Their thoughtful gifts support the area of the Garden's mission they value most.

In 1986, the Garden's Board of Trustees established the Heritage Society to recognize this outstanding group of friends. They provide vital support to help sustain the Garden's mission into the future. The Garden is proud to recognize these thoughtful donors as part of our Heritage Society and share their stories.

This information is not intended as legal, tax, or investment advice. For such advice, the Garden recommends consulting your attorney, tax professional, or investment professional.

Connecting with History

You don't need a whole garden to make a difference! Are you interested in making **a gift in your will**? You might be like Joy and Rick Moll. Joy and Rick have volunteered in the Garden archive and really connect with the Garden's history. They also want to support the Garden's future.



Plant discovery is possible with support from donors like Joy and Rick.

"We wanted to make one gift that supported education, local development, the environment, and the work in all the countries where the Garden has botanical projects," Joy says. "The Garden is a world-class institution, and a collaborative one. It's an impressive legacy."

Making a gift in your will is a popular way to give. Your gift can be a percentage of your estate or a specific amount. If you already have a will, a bequest to the Garden can be accommodated by adding a codicil.

Joy and Rick are happy to connect with Henry Shaw's legacy and pleased to find so many of their interests embodied in the work of the Garden.

Providing for the Future

Perhaps you are interested in making a gift that provides steady payments during your retirement years. You might consider a **charitable gift annuity**, like Jean Leonhardt. Jean has volunteered with the Garden for more than 30 years. She loves speaking with guests of all ages and connecting them with the Garden. Jean supports the Garden's endowment to provide connections for years to come. "I truly believe that to whom much is given, much is expected," Jean says. "Whatever I give comes back to me somehow."

With a gift annuity, you make a gift of cash, stock, or other assets. In return, you receive a fixed sum each year for the rest of your lifetime. Rates are based on your age. This is a great option if you have highly appreciated stocks.



Guests of all ages explore the Garden with support from donors like Jean.



People enjoy the Nature Reserve's natural areas thanks to the support of donors like Tom and Marilyn.

A Passion for Nature

If you would like to make a gift that offers payments back to you for a set period, you might be interested in a **charitable remainder trust**. This option works for Marilyn Chryst. She and her husband Tom were longtime volunteers and supporters of Shaw Nature Reserve.

"I believe in the work at Shaw Nature Reserve," Marilyn says. "I love the people there and the work they do. They are creating a place where people can come and learn about the natural world—prairie, wetlands, glades, forest—it's all there to see and understand. I think that is what Henry Shaw wanted." Giving through a charitable remainder trust offers you an income-tax deduction now on the value of the gift while providing payments. The remainder of your gift can be directed to a specific area of interest, like the Nature Reserve.

The Next Generation

Many people have an insurance policy or a retirement plan, such as an IRA or 401(k). The Garden can be listed as **beneficiary on these policies**. This type of gift appeals to Dr. Ann Johanson. As a pediatrician, she understands the role of the natural world in the healthy development of children.

Ann's planned gift allows her to ensure continued support for the hands-on exploration, learning, and play provided to children at the Garden. "Giving from my IRA makes great sense," Ann says. "It maximizes my gift and protects my heirs. And it's important to me to contribute to organizations that use money wisely. I have confidence in the Garden."

Distributions from some retirement plans will be subject to income tax. Like Ann, you can name the Garden as a beneficiary. As a tax-exempt nonprofit, the Garden could receive the full gift without a tax burden; it doesn't pay income tax on the distributions like an individual would.



Children grow and engage with nature with support from donors like Ann.

Learn More!

For more information about the Heritage Society and planned gifts, contact (314) 577-9500 or plannedgiving@mobot.org. You can also visit www.mobot.org/plannedgiving.

photos by Karen Fletcher, Josh Nezam, and Heather Marie Osborn, and courtesy of Si He

just for members













Member Day: Protecting Your Trees

September 20 | 11 a.m.–noon | Shoenberg Theater

Commissioner of Forestry Skip Kincaid discusses the benefits of trees and how to protect the trees you love from threats that reduce their benefits and lifespan. Reservations required; space is limited.

Best of Missouri Market Members-Only Shopping Hour and Breakfast

October 1 | 8–9 a.m.

Members enjoy breakfast as they shop from 8 to 9 a.m. before the crowds. Join or renew your Garden membership at the Market and get in free!

Magical Miniature Gardens

October 9 | 11 a.m.–1 p.m.
Butterfly House

Join us at the Butterfly House for miniature garden fun! Learn how to create your own special landscape and see professionals display their work. Light snack provided. Reservations required.

Ghouls in the Garden

October 30 | 1–3 p.m.

Bring your costumed kids for themed trick-or-treating through the Garden. Includes admission to the Children's Garden. Reservation times: 1 p.m.; 1:30 p.m.; and 2 p.m. $5 member children ages 3–12. Advance ticket purchase required.

photos by Tom Incrocci, Phoebe Mussman, Dan Brown, and Kat Niehaus





Information and registration at (314) 577-5118 or www.mobot.org/memberevents unless otherwise noted.







photos by Mary Lou Olson, Dan Brown, Sonya Lalla, Monique Mullen, and Sheridan Hentrich

Member Day: Holiday Decorating

November 3 | 11 a.m.–noon | Shoenberg Theater

Scott Hepper from Walter Knoll Florist offers tips and demonstrations to help you decorate your home for the holidays. Reservations required; space is limited.

Garden Glow Member Preview

November 18 | 5:30–9:30 p.m.

This special members-only preview includes both Garden Glow and Gardenland Express. Come see what's new with both holiday venues. Timed tickets available. $14 member adults; $6 member children. Advance ticket purchase required.

Member Day: Winter Jewels

November 28 | 10 a.m.–noon | Butterfly House

Enjoy the warmth of the Tropical Conservatory and the beauty of jewel-toned butterflies. Go on a treasure hunt, discover fairies, encounter a gnome, and participate in special activities. Reservations required.

Breakfast with Santa

December 3 | 8–10:30 a.m. Ridgway Visitor Center

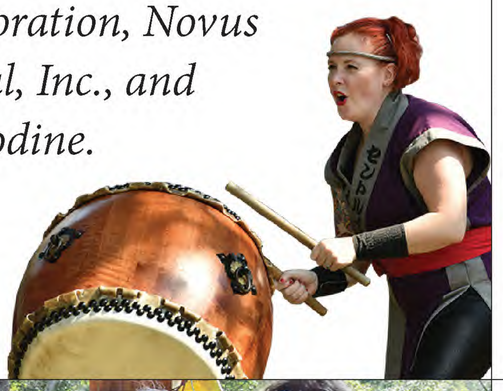
Visit with Santa as he makes his yearly stop at the Garden for our members-only breakfast buffet. Make crafts and take photos with Rudolph, Frosty, and Mrs. Claus. Advance ticket purchase required.

special events

Japanese Festival

September 3–5

Celebrate the 40th anniversary of this three-day cultural adventure at the Garden. Join or renew your membership at the festival and get in free. *Sponsorship by The Boeing Company, Nidec Motor Corporation, Novus International, Inc., and TOYOTA Bodine.*





Shaw Wildflower Market

September 9 | 4–7:30 p.m. | Shaw Nature Reserve

Shop for locally produced native plants, food, and crafts. Experts will also answer your native gardening questions. $5 adults; free for members.



September 30–October 2

Join us for a weekend of fall fun! More than 120 food producers and crafters offer baked goods, flowers, herbs, handcrafted items, baskets, wooden toys, custom jewelry, and more. Enjoy live music and a kids' corner with crafts and fall activities. Join or renew your membership at the Market and get in free.

www.mobot.org/bestofmomarket

FEST-OF-ALE

October 14 | 6–9 p.m.

Join the Young Friends of the Garden for the ninth annual Fest-of-Ale. Enjoy offerings from the region's microbreweries, hors d'oeuvres, and live music. $30 members; $40 nonmembers. Prices increase $5 September 15. Advance ticket purchase required: (314) 577-5118 or www.mobot.org/festofale.

Spirits in the Garden

October 28 | 6–9 p.m.

Celebrate All Hallows' Eve with the spirit of Henry Shaw as you enjoy botanical spirits from local distilleries, a costume contest, a scavenger hunt, and ghost stories. $25 members; $35 nonmembers; $15 designated drivers. Cash bar available. Attendees must be at least 21 years of age. More at www.mobot.org/spirits.



Membership Sale

November 2–6

Receive 20% off memberships. Join, renew, or give the gift of the Garden! Visit the Membership Services Desk at the Missouri Botanical Garden, Sophia M. Sachs Butterfly House, or Shaw Nature Reserve; call (314) 577-5118 or visit www.mobot.org/membership during the sale dates to receive the discount.



Holiday Wreath Display and Auction

November 21–January 3 | Ridgway Visitor Center

This annual holiday exhibit features unique creations donated by some of the area's finest floral designers. Wreaths are sold by silent-auction bidding, with proceeds benefiting the Garden's Horticulture program. Included with admission.





Garden Glow

November 19–January 1

Presented by Wells Fargo Advisors.

Experience a million lights amid the Garden's most iconic locations. More at www.mobot.org/glow. Member tickets available online* and on-site September 15. General public tickets available September 30.

**service fee applies*

photos by Ning He, Jill Setlich, Sheridan Hentrich, and Dan Brown

From gardening tools and unique toys to vintage items and local products, the Garden shops have just what you're looking for.
Look for these icons to know where each event or sale is taking place.

Garden Gate Shop
4344 Shaw Blvd.
St. Louis, MO 63110
Monday–Sunday
9 a.m. to 5:30 p.m.
(314) 577-5137

Butterfly House Gift Shop
15193 Olive Blvd.
Chesterfield, MO 63017
Tuesday–Sunday
10 a.m. to 4 p.m.
(636) 530-0076 ext. 15

Little Shop Around the Corner
4474 Castleman Ave.
St. Louis, MO 63110
Tuesday–Saturday
10 a.m. to 4 p.m.
(314) 577-0891

Plan Your Holiday Events at the Garden
DON'T MISS!

It's never too early to start making plans for the holidays! Plan your corporate holiday party this year at the Garden! Your guests can enjoy Garden Glow, make s'mores on the patio at the William T. Kemper Center for Home Gardening, and enjoy member pricing during their event. For more information and to book your event, call Katie at (314) 961-7588, ext. 290.

First Fridays
First Friday of the month |
Discover something new—from book signings to food samplings to trunk shows. More at www.mobot.org/shop.

Café Flora
Through October 30 | 10 a.m.–2 p.m. | NEW! Open Saturdays
Enjoy a delicious brunch at the iconic Spink Pavilion with a view like no other. Info at www.mobot.org/brunch.

Pick Your Own Discount
Weekends in September |
Draw a discount out of our basket and apply it to your purchase. Discounts range from 5% to 25%; one 40% discount available each Saturday and Sunday. No additional discounts apply; members receive the greater of the discounts. See shop for details.

Staff and Volunteer Sales
September 7–9; November 17–19 |
As a thank you for making the Garden a world-class institution, all Garden staff and volunteers receive an extra 10% off their purchases.

Bug Hunt Sale
September 11 |
Receive 20% off all insect-hunting equipment and supplies, such as nets, containers, and more!

Fall Bulb Sale
September 19–November 13 |
Now is the time to stock up and plant next spring's beautiful bulbs!

Member Shopping Night: Fall Food/Candy
September 23 | 5–7 p.m. |
Drop in for a shopping experience and enjoy a 20% discount during these extended hours for members only. Taste all the new fall-flavored candy, snacks, and gift packs. No reservations required. Get a Rewards Card punch for attending (see page 9).

Member Double Days
October 9–10 |
All Garden members receive 20% off purchases in the shops.

Member Shopping Night: Holiday Food/Candy
November 9 | 5–7 p.m. |
Drop in for a shopping experience and enjoy a 20% discount during these extended hours for members only. Taste all the new holiday-flavored candy, snacks, and gift packs. No reservations required. Get a Rewards Card punch for attending (see page 9).

Books & Butterflies Sale
November 1–20 |
Get 10% off all books during our Books & Butterflies event. Also check www.butterflyhouse.org for our book signing schedule with local authors.

»staff pick



Kailey's Gourmet Nuts
These fall- and holiday-flavored pecans are perfect for all your gatherings this season. Check out these flavors: Apple Pie, Gingerbread Glazed, Cinnamon Glazed, and Pumpkin Spice. $8.99 each for a 5.6 oz. bag. Get yours at the Garden Gate Shop.

commemorative gifts

April–June 2016.
A commemorative gift is a wonderful way to honor family and friends. Gifts of $50 or more are listed in the *Bulletin*. For more information about giving opportunities at the Missouri Botanical Garden, please call (314) 577-5118 or make a commemorative gift at www.mobot.org/tributes.

In Honor of

Ms. MaryLee Ansell
Becky, Janice, Lynn, and Jean Daniel Gentry

Timothy and Beth Bates
Mr. Gary W. Lucas

Kim Benson
Mary Florence Boone

Betsy Biggs
Mrs. Mary-Randolph Ballinger
Carolyn and Ernest Clarke

Mr. and Mrs. Ryan Blum
Mr. Gary W. Lucas

Sherrill Boardman
Barbara and Paul Johnson

Kimmy Brauer
Mrs. Mary-Randolph Ballinger
Carolyn and Ernie Clarke

Ann Case
Nancy Noland Kurten
Nancy Ream

Skippy Dennis
Linda K. Bentley
Valerie Dennis

Brian Ebel and Wendy Eberhart
Mrs. Nan S. Jones

Ms. Deanne Flatley
Parkview Horticultural Society

Norma Fraser
Ann Case

Marianne Galt
Mrs. Mary-Randolph Ballinvger
Carolyn and Ernie Clarke

Grueninger and Gluck Wedding Guests
Krista Grueninger and William Gluck

Lynn Hamilton
Ellen and Henry Dubinsky
Nora Stern

Sally Harrison
Mrs. Suzy Seldin

Kate Hartz
Laura Crites

Don Holt and Eileen Stanley
Art and Wanda Kruse

Barb Johnson
Ranney and Sallie Dohogne

Mark Kalk
Ann Case

Lorraine Kinman
Ms. Roberta L. Sterling

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Mr. Gary W. Lucas

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Meramec Valley Early Childhood Center

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Ms. Kimberly Doi

Ms. Toshiye "Toshi" Doi
Ms. Kimberly Doi

Mrs. Marjorie Domeier
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Rosemary Murphy

Trevor James Dreyfus
Mrs. Katie Banahan
Mr. Eric Brunt
Mr. Edwin R. Jones
Ms. Genie Newport
Mr. Hillary Newport
Mr. Michael Newport
Mr. Eric Palmer
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Lindy Rossow

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April–June 2016.
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September 30–October 2
www.mobot.org/bestofmomarket

Join or renew at the event and get in for free!

Sponsorship by Blue Owl Restaurant, Commerce Bank, Drury Hotels Company, Inc., Edward Jones, The Home Depot, Ronnoco Coffee, LLC, Schnuck Markets, Inc., Nora R. Stern, Waterway Gas and Wash, and Wehrenberg Theatres.

photo by Sheridan Hentrich

FEST-OF-ALE

Join the Young Friends of the Missouri Botanical Garden for the ninth annual Fest-of-Ale! This event celebrates local beer as the region's microbreweries bring their best offerings to the Garden for sampling. Ticket price includes a commemorative tasting glass, beer sampling, appetizers, and live music. All attendees must be at least 21 years of age.

October 14 | 6–9 p.m.

$30 members* | $40 nonmembers* | $15 designated driver†

*prices increase by $5 September 15

†designated drivers do not receive a tasting glass

All proceeds benefit the Doris I. Schnuck Children's Garden.



www.mobot.org/festofale

MISSOURI BOTANICAL GARDEN

calendar

www.mobot.org/events

september | october | november



Japanese Festival
September 3–5



GHOULS | in the | GARDEN

October 30 | 1–3 p.m.

Free for members | $5 members children (ages 3–12)

Bring your pirates, your witches, ghosts, and wolves—they can meet ours! Children dressed in costumes enjoy treats from themed stations around the Garden to fill their souvenir Ghouls treat bag! Free admission to the Doris I. Schnuck Children's Garden included.

www.mobot.org/memberevents



Wicked Wings and Wine

at the Butterfly House

October 19 or 26 | 5:30–7:30 p.m.

$20 members | $30 nonmembers
$15 designated drivers

Join us for happy hour to celebrate the spirit of Halloween. Sample wines from Total Wine and More while you learn about our owl butterflies, which are most active at dusk. Encounter live animals from the World Bird Sanctuary, take a stroll through the torch-lit garden, and enjoy festive music. Advance tickets required. Attendees must be at least 21 years of age.

www.butterflyhouse.org



Prairie Day

at Shaw Nature Reserve
September 17

www.shawnature.org/prairieday

september 2016

average temperature: low 60° | high 80°
average precipitation: 2.96 in.

What's in bloom?


Bluebeard


Lily turf


Evergreen azalea

6/2–9/1	**Sensational Summer Nights** | 5–8 p.m.
9/3–9/5	**Japanese Festival** September 3: 10 a.m.–8 p.m. | $ September 4: 10 a.m.–8 p.m. | $ September 5 (Labor Day): 10 a.m.–5 p.m. | $
9/7–9/9	**Staff and Volunteer Sale** at the shops | GGS, BHGS, LS
9/9	**Shaw Wildflower Market** | 4–7:30 p.m. | $ SNR
9/11	**Bug Hunt** | 10 a.m.–3 p.m. | BH
9/17	**Prairie Day** | 10 a.m.–4 p.m. | $ SNR
9/19–11/13	**Fall Bulb Sale** | through November 13 | GGS
9/20	**Member Day: Protecting Your Trees** 11 a.m.–noon | ☎ ST
9/23	**Member Shopping Night: Fall Food/Candy** 5–7 p.m. | GGS
9/30	**Best of Missouri Market** | First Look Friday 6–9 p.m. | $



october 2016

average temperature: low 48° | high 68°
average precipitation: 2.76 in.

What's in bloom?


Chrysanthemum


Spider mum


Primrose

9/30–10/2	**Best of Missouri Market** September 30: First Look Friday | 6–9 p.m. | $ October 1: Members-Only Shopping Hour and Breakfast | 8–9 a.m. October 1: 9 a.m.–5 p.m. | $ October 2: 9 a.m.–5 p.m. | $
10/1–10/31	**Booterfly House** | 10 a.m.–3 p.m. (closed on Mondays) | BH
10/9–10/10	**Member 20% Sale at the shops** | GGS, BHGS, LS
10/9	**Member Day: Magical Miniature Gardens** 11 a.m.–1 p.m. | ☎ BH
10/14	**Fest-of-Ale** | 6–9 p.m. | $
10/19	**Wicked Wings and Wine** | 5:30–7:30 p.m. | ☎ $ BH
10/22–10/23	**Booterflies Ball** | 5–7 p.m. | ☎ $ BH
10/26	**Wicked Wings and Wine** | 5:30–7:30 p.m. | ☎ $ BH
10/28	**Spirits in the Garden** | 6–9 p.m. | $
10/29–10/30	**Doris I. Schnuck Children's Garden Seasonal Closing** | 9 a.m.–3 p.m. | $ CHD
10/30	**Member Event: Ghouls in the Garden** | 1 p.m. ☎ $



november 2016

average temperature: low 37° | high 54°
average precipitation: 3.71 in.

What's in bloom?


Cranesbill


Self heal


Skyblue aster

11/1–11/20	**Books & Butterflies** | 11 a.m. (closed Mondays) | BH
11/2–11/6	**Membership Sale**: 20% off new, gift, and renewed memberships, on-site MBG, BH, SNR; by phone at (314) 577-5118, or at www.mobot.org/membership.
11/3	**Member Day: Holiday Decorating** 11 a.m.–noon | ☎ ST
11/5–11/6	**Bookworm Breakfast: Clifford the Big Red Dog** 9–10 a.m. | ☎ $ BH
11/9	**Member Shopping Night: Holiday Food/Candy** 5–7 p.m. | GGS
11/16–1/1	**Victorian Christmas at Tower Grove House** Wednesdays–Sundays | 10 a.m.–4 p.m.
11/17–11/19	**Staff and Volunteer Sale** at the shops | GGS, BHGS, LS
11/18	**Garden Glow Member Preview** | 5:30–9:30 p.m. ☎ $
11/19–1/1	**Garden Glow** | 5–10 p.m. | Closed Christmas Eve and Christmas Day | $ | *Presented by Wells Fargo Advisors*
11/19–1/1	**Gardenland Express** | 9 a.m.–4 p.m. | $ RVC *Presented by Wells Fargo Advisors*
11/21–1/3	**Holiday Wreath Display and Auction** 9 a.m.–4 p.m. | RVC
11/25–12/31	**Winter Jewels** | 10 a.m.–3 p.m. (closed on Mondays, Christmas Eve, and Christmas Day) | BH
11/28	**Member Day: Winter Jewels** | 10 a.m.–noon ☎ BH

your garden



When and how can I plant spring-flowering bulbs?

Few plants are more rewarding or easier to grow than spring-flowering bulbs. They are readily available each fall in local garden centers or hardware stores. Shop early in the season while the selection is good and choose from hundreds of bulb varieties. Some of the most popular bulbs include tulips, narcissus (also called daffodils), crocus, and hyacinths.

Bulbs should be planted in drifts or groups of three or more to avoid a rigid look. They may be planted in full sun or partial shade. Bulbs do well when planted under deciduous trees, because they generally bloom before the trees leaf out. Before planting work an all-purpose fertilizer, such as 20-20-20, into the soil along with organic matter and sharp sand or calcined clay products, such as turface, to provide good drainage. Plant tulips and daffodils 7–8 inches deep, hyacinths 6 inches deep, and crocus and most small minor bulbs 3–4 inches deep. Daffodils and small bulbs are best planted by the end of October. Tulips can be planted until the ground freezes. They need about 90 days from planting to the time they flower. After covering the bulbs with soil, mulch the area with 2–3 inches of shredded bark, leaf mold, or other organic material, and water to facilitate rapid root growth.

After the bulbs have bloomed, remove the spent flowers but leave the foliage intact to die down naturally. This is called "ripening." The foliage must be allowed to ripen in order for food reserves to be stored in the bulb. This food is used to produce next year's flowers.

More advice and tips at www.mobot.org/gardeninghelp.

Plant Societies' Shows and Sales

Get the latest information about your favorite plant society's show and sale by visiting www.mobot.org/plantsocieties.

Key *(All events take place at the Garden unless otherwise noted.)*

BH	Butterfly House	KC	Kemper Center for Home Gardening
BHGS	Butterfly House Gift Shop	LS	Little Shop Around The Corner
CA	Cohen Amphitheater	MC	Monsanto Research Center
CBEC	Commerce Bank Center for Science Education	MH	Monsanto Hall (in RVC)
CHD	Children's Garden	RVC	Ridgway Visitor Center
CL	Climatron lawn	SNR	Shaw Nature Reserve
GGS	Garden Gate Shop	SP	Spink Pavilion
JE	Jordan Education Wing (in RVC)	ST	Shoenberg Theater (in RVC)

Sassafras
Members-only event
Double punches for Garden Gate Shop Rewards Card
☎ Reservations required
$ Fee required

photos by (front) Kat Niehaus, Josh Nezam, Mary Lou Olson, Jill Setlich, and Nathan Wagner. (this page) Monique Mullen, Tom Incrocci, and Kevin Kersting.